



## SEQUENCE LISTING

<110> Sherman, David H.  
Liu, Hung-Wen  
Xue, Yongquan  
Zhao, Lishan  
Regents of the University of Minnesota, et al.

<120> Promoter for Methymycin and Pikromycin

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<140> 09/988,384

<141> 2001-11-19

<160> 62

<170> FastSEQ for Windows Version 4.0

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<212> DNA

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Leu	Asp	Ser	Leu	Asp	Leu	Phe	Asp	Ala	Ala	Phe	Phe	Gly	Ile	Ser	Pro
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									60						65
									70						75
															80

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Tyr Gly Glu Gly Cys Pro Leu Glu Arg Glu Gln Val Leu Pro Ala Ala  
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Thr Lys Gly Pro Ile Leu Glu Ile Gly Pro Gly Asp Gly Ala Leu Thr						
35	40	45				
Leu Pro Leu Ser Arg His Gly Arg Pro Ile Thr Ala Val Glu Leu Asp						
50	55	60				
Gly Arg Arg Ala Gln Arg Leu Gly Ala Arg Thr Pro Gly His Val Thr						
65	70	75	80			
Val Val His His Asp Phe Leu Gln Tyr Pro Leu Pro Arg Asn Pro His						
85	90	95				
Val Val Val Gly Asn Val Pro Phe His Leu Thr Thr Ala Ile Met Arg						
100	105	110				
Arg Leu Leu Asp Ala Gln His Trp His Thr Ala Val Leu Leu Val Gln						
115	120	125				
Trp Glu Val Ala Arg Arg Arg Ala Gly Val Gly Gly Ser Thr Leu Leu						
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Thr Ala Gly Trp Ala Pro Trp Tyr Glu Phe Asp Leu His Ser Arg Val						
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Pro Ala Arg Ala Phe Arg Pro Met Pro Gly Val Asp Gly Gly Val Leu						
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Ala Ile Arg Arg Arg Ser Ala Pro Leu Val Gly Gln Val Lys Thr Tyr						
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Gln Asp Phe Val Arg Gln Val Phe Thr Gly Lys Gly Asn Gly Leu Lys						
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Glu Ile Leu Arg Arg Thr Gly Arg Ile Ser Gln Arg Asp Leu Ala Thr						
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 850 855 860  
 Ala Gly Ala Ile Trp Asp Asp Tyr Ala Thr Leu Lys His Arg Gln Gly  
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 Ala Thr Gly Leu Gln Leu Pro Ala Thr Leu Val Phe Asp His Pro Thr  
 3205 3210 3215  
 Pro Leu Ala Leu Val Ser Leu Leu Arg Ser Glu Phe Leu Gly Asp Glu  
 3220 3225 3230  
 Glu Thr Ala Asp Ala Arg Arg Ser Ala Ala Leu Pro Ala Thr Val Gly  
 3235 3240 3245  
 Ala Gly Ala Gly Ala Gly Ala Gly Thr Asp Ala Asp Asp Asp Pro Ile  
 3250 3255 3260  
 Ala Ile Val Ala Met Ser Cys Arg Tyr Pro Gly Asp Ile Arg Ser Pro  
 3265 3270 3275 3280  
 Glu Asp Leu Trp Arg Met Leu Ser Glu Gly Gly Glu Gly Ile Thr Pro  
 3285 3290 3295  
 Phe Pro Thr Asp Arg Gly Trp Asp Leu Asp Gly Leu Tyr Asp Ala Asp  
 3300 3305 3310  
 Pro Asp Ala Leu Gly Arg Ala Tyr Val Arg Glu Gly Phe Leu His  
 3315 3320 3325  
 Asp Ala Ala Glu Phe Asp Ala Glu Phe Phe Gly Val Ser Pro Arg Glu  
 3330 3335 3340  
 Ala Leu Ala Met Asp Pro Gln Gln Arg Met Leu Leu Thr Thr Ser Trp  
 3345 3350 3355 3360

Glu Ala Phe Glu Arg Ala Gly Ile Glu Pro Ala Ser Leu Arg Gly Ser  
                   3365                  3370                  3375  
 Ser Thr Gly Val Phe Ile Gly Leu Ser Tyr Gln Asp Tyr Ala Ala Arg  
                   3380                  3385                  3390  
 Val Pro Asn Ala Pro Arg Gly Val Glu Gly Tyr Leu Leu Thr Gly Ser  
                   3395                  3400                  3405  
 Thr Pro Ser Val Ala Ser Gly Arg Ile Ala Tyr Thr Phe Gly Leu Glu  
                   3410                  3415                  3420  
 Gly Pro Ala Thr Thr Val Asp Thr Ala Cys Ser Ser Ser Leu Thr Ala  
                   3425                  3430                  3435                  3440  
 Leu His Leu Ala Val Arg Ala Leu Arg Ser Gly Glu Cys Thr Met Ala  
                   3445                  3450                  3455  
 Leu Ala Gly Gly Val Ala Met Met Ala Thr Pro His Met Phe Val Glu  
                   3460                  3465                  3470  
 Phe Ser Arg Gln Arg Ala Leu Ala Pro Asp Gly Arg Ser Lys Ala Phe  
                   3475                  3480                  3485  
 Ser Ala Asp Ala Asp Gly Phe Gly Ala Ala Glu Gly Val Gly Leu Leu  
                   3490                  3495                  3500  
 Leu Val Glu Arg Leu Ser Asp Ala Arg Arg Asn Gly His Pro Val Leu  
                   3505                  3510                  3515                  3520  
 Ala Val Val Arg Gly Thr Ala Val Asn Gln Asp Gly Ala Ser Asn Gly  
                   3525                  3530                  3535  
 Leu Thr Ala Pro Asn Gly Pro Ser Gln Gln Arg Val Ile Arg Gln Ala  
                   3540                  3545                  3550  
 Leu Ala Asp Ala Arg Leu Ala Pro Gly Asp Ile Asp Ala Val Glu Thr  
                   3555                  3560                  3565  
 His Gly Thr Gly Thr Ser Leu Gly Asp Pro Ile Glu Ala Gln Gly Leu  
                   3570                  3575                  3580  
 Gln Ala Thr Tyr Gly Lys Glu Arg Pro Ala Glu Arg Pro Leu Ala Ile  
                   3585                  3590                  3595                  3600  
 Gly Ser Val Lys Ser Asn Ile Gly His Thr Gln Ala Ala Ala Gly Ala  
                   3605                  3610                  3615  
 Ala Gly Ile Ile Lys Met Val Leu Ala Met Arg His Gly Thr Leu Pro  
                   3620                  3625                  3630  
 Lys Thr Leu His Ala Asp Glu Pro Ser Pro His Val Asp Trp Ala Asn  
                   3635                  3640                  3645  
 Ser Gly Leu Ala Leu Val Thr Glu Pro Ile Asp Trp Pro Ala Gly Thr  
                   3650                  3655                  3660  
 Gly Pro Arg Arg Ala Ala Val Ser Ser Phe Gly Ile Ser Gly Thr Asn  
                   3665                  3670                  3675                  3680  
 Ala His Val Val Leu Glu Gln Ala Pro Asp Ala Ala Gly Glu Val Leu  
                   3685                  3690                  3695  
 Gly Ala Asp Glu Val Pro Glu Val Ser Glu Thr Val Ala Met Ala Gly  
                   3700                  3705                  3710  
 Thr Ala Gly Thr Ser Glu Val Ala Glu Gly Ser Glu Ala Ser Glu Ala  
                   3715                  3720                  3725  
 Pro Ala Ala Pro Gly Ser Arg Glu Ala Ser Leu Pro Gly His Leu Pro  
                   3730                  3735                  3740  
 Trp Val Leu Ser Ala Lys Asp Glu Gln Ser Leu Arg Gly Gln Ala Ala  
                   3745                  3750                  3755                  3760  
 Ala Leu His Ala Trp Leu Ser Glu Pro Ala Ala Asp Leu Ser Asp Ala  
                   3765                  3770                  3775  
 Asp Gly Pro Ala Arg Leu Arg Asp Val Gly Tyr Thr Leu Ala Thr Ser  
                   3780                  3785                  3790  
 Arg Thr Ala Phe Ala His Arg Ala Ala Val Thr Ala Ala Asp Arg Asp  
                   3795                  3800                  3805  
 Gly Phe Leu Asp Gly Leu Ala Thr Leu Ala Gln Gly Gly Thr Ser Ala  
                   3810                  3815                  3820  
 His Val His Leu Asp Thr Ala Arg Asp Gly Thr Thr Ala Phe Leu Phe  
                   3825                  3830                  3835                  3840  
 Thr Gly Gln Gly Ser Gln Arg Pro Gly Ala Gly Arg Glu Leu Tyr Asp  
                   3845                  3850                  3855

Arg His Pro Val Phe Ala Arg Ala Leu Asp Glu Ile Cys Ala His Leu  
 3860 3865 3870  
 Asp Gly His Leu Glu Leu Pro Leu Leu Asp Val Met Phe Ala Ala Glu  
 3875 3880 3885  
 Gly Ser Ala Glu Ala Ala Leu Leu Asp Glu Thr Arg Tyr Thr Gln Cys  
 3890 3895 3900  
 Ala Leu Phe Ala Leu Glu Val Ala Leu Phe Arg Leu Val Glu Ser Trp  
 3905 3910 3915 3920  
 Gly Met Arg Pro Ala Ala Leu Leu Gly His Ser Val Gly Glu Ile Ala  
 3925 3930 3935  
 Ala Ala His Val Ala Gly Val Phe Ser Leu Ala Asp Ala Ala Arg Leu  
 3940 3945 3950  
 Val Ala Ala Arg Gly Arg Leu Met Gln Glu Leu Pro Ala Gly Gly Ala  
 3955 3960 3965  
 Met Leu Ala Val Gln Ala Ala Glu Asp Glu Ile Arg Val Trp Leu Glu  
 3970 3975 3980  
 Thr Glu Glu Arg Tyr Ala Gly Arg Leu Asp Val Ala Ala Val Asn Gly  
 3985 3990 3995 4000  
 Pro Glu Ala Ala Val Leu Ser Gly Asp Ala Asp Ala Ala Arg Glu Ala  
 4005 4010 4015  
 Glu Ala Tyr Trp Ser Gly Leu Gly Arg Arg Thr Arg Ala Leu Arg Val  
 4020 4025 4030  
 Ser His Ala Phe His Ser Ala His Met Asp Gly Met Leu Asp Gly Phe  
 4035 4040 4045  
 Arg Ala Val Leu Glu Thr Val Glu Phe Arg Arg Pro Ser Leu Thr Val  
 4050 4055 4060  
 Val Ser Asn Val Thr Gly Leu Ala Ala Gly Pro Asp Asp Leu Cys Asp  
 4065 4070 4075 4080  
 Pro Glu Tyr Trp Val Arg His Val Arg Gly Thr Val Arg Phe Leu Asp  
 4085 4090 4095  
 Gly Val Arg Val Leu Arg Asp Leu Gly Val Arg Thr Cys Leu Glu Leu  
 4100 4105 4110  
 Gly Pro Asp Gly Val Leu Thr Ala Met Ala Ala Asp Gly Leu Ala Asp  
 4115 4120 4125  
 Thr Pro Ala Asp Ser Ala Ala Gly Ser Pro Val Gly Ser Pro Ala Gly  
 4130 4135 4140  
 Ser Pro Ala Asp Ser Ala Ala Gly Ala Leu Arg Pro Arg Pro Leu Leu  
 4145 4150 4155 4160  
 Val Ala Leu Leu Arg Arg Lys Arg Ser Glu Thr Glu Thr Val Ala Asp  
 4165 4170 4175  
 Ala Leu Gly Arg Ala His Ala His Gly Thr Gly Pro Asp Trp His Ala  
 4180 4185 4190  
 Trp Phe Ala Gly Ser Gly Ala His Arg Val Asp Leu Pro Thr Tyr Ser  
 4195 4200 4205  
 Phe Arg Arg Asp Arg Tyr Trp Leu Asp Ala Pro Ala Ala Asp Thr Ala  
 4210 4215 4220  
 Val Asp Thr Ala Gly Leu Gly Leu Gly Thr Ala Asp His Pro Leu Leu  
 4225 4230 4235 4240  
 Gly Ala Val Val Ser Leu Pro Asp Arg Asp Gly Leu Leu Leu Thr Gly  
 4245 4250 4255  
 Arg Leu Ser Leu Arg Thr His Pro Trp Leu Ala Asp His Ala Val Leu  
 4260 4265 4270  
 Gly Ser Val Leu Leu Pro Gly Ala Ala Met Val Glu Leu Ala Ala His  
 4275 4280 4285  
 Ala Ala Glu Ser Ala Gly Leu Arg Asp Val Arg Glu Leu Thr Leu Leu  
 4290 4295 4300  
 Glu Pro Leu Val Leu Pro Glu His Gly Gly Val Glu Leu Arg Val Thr  
 4305 4310 4315 4320  
 Val Gly Ala Pro Ala Gly Glu Pro Gly Gly Glu Ser Ala Gly Asp Gly  
 4325 4330 4335  
 Ala Arg Pro Val Ser Leu His Ser Arg Leu Ala Asp Ala Pro Ala Gly  
 4340 4345 4350

Thr Ala Trp Ser Cys His Ala Thr Gly Leu Leu Ala Thr Asp Arg Pro  
 4355 4360 4365  
 Glu Leu Pro Val Ala Pro Asp Arg Ala Ala Met Trp Pro Pro Gln Gly  
 4370 4375 4380  
 Ala Glu Glu Val Pro Leu Asp Gly Leu Tyr Glu Arg Leu Asp Gly Asn  
 4385 4390 4395 4400  
 Gly Leu Ala Phe Gly Pro Leu Phe Gln Gly Leu Asn Ala Val Trp Arg  
 4405 4410 4415  
 Tyr Glu Gly Glu Val Phe Ala Asp Ile Ala Leu Pro Ala Thr Thr Asn  
 4420 4425 4430  
 Ala Thr Ala Pro Ala Thr Ala Asn Gly Gly Ser Ala Ala Ala Ala  
 4435 4440 4445  
 Pro Tyr Gly Ile His Pro Ala Leu Leu Asp Ala Ser Leu His Ala Ile  
 4450 4455 4460  
 Ala Val Gly Gly Leu Val Asp Glu Pro Glu Leu Val Arg Val Pro Phe  
 4465 4470 4475 4480  
 His Trp Ser Gly Val Thr Val His Ala Ala Gly Ala Ala Ala Arg  
 4485 4490 4495  
 Val Arg Leu Ala Ser Ala Gly Thr Asp Ala Val Ser Leu Ser Leu Thr  
 4500 4505 4510  
 Asp Gly Glu Gly Arg Pro Leu Val Ser Val Glu Arg Leu Thr Leu Arg  
 4515 4520 4525  
 Pro Val Thr Ala Asp Gln Ala Ala Ser Arg Val Gly Gly Leu Met  
 4530 4535 4540  
 His Arg Val Ala Trp Arg Pro Tyr Ala Leu Ala Ser Ser Gly Glu Gln  
 4545 4550 4555 4560  
 Asp Pro His Ala Thr Ser Tyr Gly Pro Thr Ala Val Leu Gly Lys Asp  
 4565 4570 4575  
 Glu Leu Lys Val Ala Ala Leu Glu Ser Ala Gly Val Glu Val Gly  
 4580 4585 4590  
 Leu Tyr Pro Asp Leu Ala Ala Leu Ser Gln Asp Val Ala Ala Gly Ala  
 4595 4600 4605  
 Pro Ala Pro Arg Thr Val Leu Ala Pro Leu Pro Ala Gly Pro Ala Asp  
 4610 4615 4620  
 Gly Gly Ala Glu Gly Val Arg Gly Thr Val Ala Arg Thr Leu Glu Leu  
 4625 4630 4635 4640  
 Leu Gln Ala Trp Leu Ala Asp Glu His Leu Ala Gly Thr Arg Leu Leu  
 4645 4650 4655  
 Leu Val Thr Arg Gly Ala Val Arg Asp Pro Glu Gly Ser Gly Ala Asp  
 4660 4665 4670  
 Asp Gly Glu Asp Leu Ser His Ala Ala Ala Trp Gly Leu Val Arg  
 4675 4680 4685  
 Thr Ala Gln Thr Glu Asn Pro Gly Arg Phe Gly Leu Leu Asp Leu Ala  
 4690 4695 4700  
 Asp Asp Ala Ser Ser Tyr Arg Thr Leu Pro Ser Val Leu Ser Asp Ala  
 4705 4710 4715 4720  
 Gly Leu Arg Asp Glu Pro Gln Leu Ala Leu His Asp Gly Thr Ile Arg  
 4725 4730 4735  
 Leu Ala Arg Leu Ala Ser Val Arg Pro Glu Thr Gly Thr Ala Ala Pro  
 4740 4745 4750  
 Ala Leu Ala Pro Glu Gly Thr Val Leu Leu Thr Gly Gly Thr Gly Gly  
 4755 4760 4765  
 Leu Gly Gly Leu Val Ala Arg His Val Val Gly Glu Trp Gly Val Arg  
 4770 4775 4780  
 Arg Leu Leu Leu Val Ser Arg Arg Gly Thr Asp Ala Pro Gly Ala Asp  
 4785 4790 4795 4800  
 Glu Leu Val His Glu Leu Glu Ala Leu Gly Ala Asp Val Ser Val Ala  
 4805 4810 4815  
 Ala Cys Asp Val Ala Asp Arg Glu Ala Leu Thr Ala Val Leu Asp Ala  
 4820 4825 4830  
 Ile Pro Ala Glu His Pro Leu Thr Ala Val Val His Thr Ala Gly Val  
 4835 4840 4845

Leu Ser Asp Gly Thr Leu Pro Ser Met Thr Thr Glu Asp Val Glu His  
 4850 4855 4860  
 Val Leu Arg Pro Lys Val Asp Ala Ala Phe Leu Leu Asp Glu Leu Thr  
 4865 4870 4875 4880  
 Ser Thr Pro Ala Tyr Asp Leu Ala Ala Phe Val Met Phe Ser Ser Ala  
 4885 4890 4895  
 Ala Ala Val Phe Gly Gly Ala Gly Gln Gly Ala Tyr Ala Ala Asn  
 4900 4905 4910  
 Ala Thr Leu Asp Ala Leu Ala Trp Arg Arg Arg Ala Ala Gly Leu Pro  
 4915 4920 4925  
 Ala Leu Ser Leu Gly Trp Gly Leu Trp Ala Glu Thr Ser Gly Met Thr  
 4930 4935 4940  
 Gly Glu Leu Gly Gln Ala Asp Leu Arg Arg Met Ser Arg Ala Gly Ile  
 4945 4950 4955 4960  
 Gly Gly Ile Ser Asp Ala Glu Gly Ile Ala Leu Leu Asp Ala Ala Leu  
 4965 4970 4975  
 Arg Asp Asp Arg His Pro Val Leu Leu Pro Leu Arg Leu Asp Ala Ala  
 4980 4985 4990  
 Gly Leu Arg Asp Ala Ala Gly Asn Asp Pro Ala Gly Ile Pro Ala Leu  
 4995 5000 5005  
 Phe Arg Asp Val Val Gly Ala Arg Thr Val Arg Ala Arg Pro Ser Ala  
 5010 5015 5020  
 Ala Ser Ala Ser Thr Thr Ala Gly Thr Ala Gly Thr Pro Gly Thr Ala  
 5025 5030 5035 5040  
 Asp Gly Ala Ala Glu Thr Ala Ala Val Thr Leu Ala Asp Arg Ala Ala  
 5045 5050 5055  
 Thr Val Asp Gly Pro Ala Arg Gln Arg Leu Leu Leu Glu Phe Val Val  
 5060 5065 5070  
 Gly Glu Val Ala Glu Val Leu Gly His Ala Arg Gly His Arg Ile Asp  
 5075 5080 5085  
 Ala Glu Arg Gly Phe Leu Asp Leu Gly Phe Asp Ser Leu Thr Ala Val  
 5090 5095 5100  
 Glu Leu Arg Asn Arg Leu Asn Ser Ala Gly Gly Leu Ala Leu Pro Ala  
 5105 5110 5115 5120  
 Thr Leu Val Phe Asp His Pro Ser Pro Ala Ala Leu Ala Ser His Leu  
 5125 5130 5135  
 Asp Ala Glu Leu Pro Arg Gly Ala Ser Asp Gln Asp Gly Ala Gly Asn  
 5140 5145 5150  
 Arg Asn Gly Asn Glu Asn Gly Thr Thr Ala Ser Arg Ser Thr Ala Glu  
 5155 5160 5165  
 Thr Asp Ala Leu Leu Ala Gln Leu Thr Arg Leu Glu Gly Ala Leu Val  
 5170 5175 5180  
 Leu Thr Gly Leu Ser Asp Ala Pro Gly Ser Glu Glu Val Leu Glu His  
 5185 5190 5195 5200  
 Leu Arg Ser Leu Arg Ser Met Val Thr Gly Glu Thr Gly Thr Gly Thr  
 5205 5210 5215  
 Ala Ser Gly Ala Pro Asp Gly Ala Gly Ser Gly Ala Glu Asp Arg Pro  
 5220 5225 5230  
 Trp Ala Ala Gly Asp Gly Ala Gly Gly Ser Glu Asp Gly Ala Gly  
 5235 5240 5245  
 Val Pro Asp Phe Met Asn Ala Ser Ala Glu Glu Leu Phe Gly Leu Leu  
 5250 5255 5260  
 Asp Gln Asp Pro Ser Thr Asp Met Ser Thr Val Asn Glu Glu Lys Tyr  
 5265 5270 5275 5280  
 Leu Asp Tyr Leu Arg Arg Ala Thr Ala Asp Leu His Glu Ala Arg Gly  
 5285 5290 5295  
 Arg Leu Arg Glu Leu Glu Ala Lys Ala Gly Glu Pro Val Ala Ile Val  
 5300 5305 5310  
 Gly Met Ala Cys Arg Leu Pro Gly Gly Val Ala Ser Pro Glu Asp Leu  
 5315 5320 5325  
 Trp Arg Leu Val Ala Gly Gly Glu Asp Ala Ile Ser Glu Phe Pro Gln  
 5330 5335 5340

Asp Arg Gly Trp Asp Val Glu Gly Leu Tyr Asp Pro Asn Pro Glu Ala  
 5345 5350 5355 5360  
 Thr Gly Lys Ser Tyr Ala Arg Glu Ala Gly Phe Leu Tyr Glu Ala Gly  
 5365 5370 5375  
 Glu Phe Asp Ala Asp Phe Phe Gly Ile Ser Pro Arg Glu Ala Leu Ala  
 5380 5385 5390  
 Met Asp Pro Gln Gln Arg Leu Leu Glu Ala Ser Trp Glu Ala Phe  
 5395 5400 5405  
 Glu His Ala Gly Ile Pro Ala Ala Thr Ala Arg Gly Thr Ser Val Gly  
 5410 5415 5420  
 Val Phe Thr Gly Val Met Tyr His Asp Tyr Ala Thr Arg Leu Thr Asp  
 5425 5430 5435 5440  
 Val Pro Glu Gly Ile Glu Gly Tyr Leu Gly Thr Gly Asn Ser Gly Ser  
 5445 5450 5455  
 Val Ala Ser Gly Arg Val Ala Tyr Thr Leu Gly Leu Glu Gly Pro Ala  
 5460 5465 5470  
 Val Thr Val Asp Thr Ala Cys Ser Ser Ser Leu Val Ala Leu His Leu  
 5475 5480 5485  
 Ala Val Gln Ala Leu Arg Lys Gly Glu Val Asp Met Ala Leu Ala Gly  
 5490 5495 5500  
 Gly Val Thr Val Met Ser Thr Pro Ser Thr Phe Val Glu Phe Ser Arg  
 5505 5510 5515 5520  
 Gln Arg Gly Leu Ala Pro Asp Gly Arg Ser Lys Ser Phe Ser Ser Thr  
 5525 5530 5535  
 Ala Asp Gly Thr Ser Trp Ser Glu Gly Val Gly Val Leu Val Glu  
 5540 5545 5550  
 Arg Leu Ser Asp Ala Arg Arg Lys Gly His Arg Ile Leu Ala Val Val  
 5555 5560 5565  
 Arg Gly Thr Ala Val Asn Gln Asp Gly Ala Ser Ser Gly Leu Thr Ala  
 5570 5575 5580  
 Pro Asn Gly Pro Ser Gln Gln Arg Val Ile Arg Arg Ala Leu Ala Asp  
 5585 5590 5595 5600  
 Ala Arg Leu Thr Thr Ser Asp Val Asp Val Val Glu Ala His Gly Thr  
 5605 5610 5615  
 Gly Thr Arg Leu Gly Asp Pro Ile Glu Ala Gln Ala Val Ile Ala Thr  
 5620 5625 5630  
 Tyr Gly Gln Gly Arg Asp Gly Glu Gln Pro Leu Arg Leu Gly Ser Leu  
 5635 5640 5645  
 Lys Ser Asn Ile Gly His Thr Gln Ala Ala Ala Gly Val Ser Gly Val  
 5650 5655 5660  
 Ile Lys Met Val Gln Ala Met Arg His Gly Val Leu Pro Lys Thr Leu  
 5665 5670 5675 5680  
 His Val Glu Lys Pro Thr Asp Gln Val Asp Trp Ser Ala Gly Ala Val  
 5685 5690 5695  
 Glu Leu Leu Thr Glu Ala Met Asp Trp Pro Asp Lys Gly Asp Gly Gly  
 5700 5705 5710  
 Leu Arg Arg Ala Ala Val Ser Ser Phe Gly Val Ser Gly Thr Asn Ala  
 5715 5720 5725  
 His Val Val Leu Glu Glu Ala Pro Ala Ala Glu Glu Thr Pro Ala Ser  
 5730 5735 5740  
 Glu Ala Thr Pro Ala Val Glu Pro Ser Val Gly Ala Gly Leu Val Pro  
 5745 5750 5755 5760  
 Trp Leu Val Ser Ala Lys Thr Pro Ala Ala Leu Asp Ala Gln Ile Gly  
 5765 5770 5775  
 Arg Leu Ala Ala Phe Ala Ser Gln Gly Arg Thr Asp Ala Ala Asp Pro  
 5780 5785 5790  
 Gly Ala Val Ala Arg Val Leu Ala Gly Gly Arg Ala Glu Phe Glu His  
 5795 5800 5805  
 Arg Ala Val Val Leu Gly Thr Gly Gln Asp Asp Phe Ala Gln Ala Leu  
 5810 5815 5820  
 Thr Ala Pro Glu Gly Leu Ile Arg Gly Thr Pro Ser Asp Val Gly Arg  
 5825 5830 5835 5840

Val Ala Phe Val Phe Pro Gly Gln Gly Thr Gln Trp Ala Gly Met Gly  
                   5845                  5850                  5855  
 Ala Glu Leu Leu Asp Val Ser Lys Glu Phe Ala Ala Ala Met Ala Glu  
                   5860                  5865                  5870  
 Cys Glu Ser Ala Leu Ser Arg Tyr Val Asp Trp Ser Leu Glu Ala Val  
                   5875                  5880                  5885  
 Val Arg Gln Ala Pro Gly Ala Pro Thr Leu Glu Arg Val Asp Val Val  
                   5890                  5895                  5900  
 Gln Pro Val Thr Phe Ala Val Met Val Ser Leu Ala Lys Val Trp Gln  
                   5905                  5910                  5915                  5920  
 His His Gly Val Thr Pro Gln Ala Val Val Gly His Ser Gln Gly Glu  
                   5925                  5930                  5935  
 Ile Ala Ala Ala Tyr Val Ala Gly Ala Leu Thr Leu Asp Asp Ala Ala  
                   5940                  5945                  5950  
 Arg Val Val Thr Leu Arg Ser Lys Ser Ile Ala Ala His Leu Ala Gly  
                   5955                  5960                  5965  
 Lys Gly Gly Met Ile Ser Leu Ala Leu Ser Glu Glu Ala Thr Arg Gln  
                   5970                  5975                  5980  
 Arg Ile Glu Asn Leu His Gly Leu Ser Ile Ala Ala Val Asn Gly Pro  
                   5985                  5990                  5995                  6000  
 Thr Ala Thr Val Val Ser Gly Asp Pro Thr Gln Ile Gln Glu Leu Ala  
                   6005                  6010                  6015  
 Gln Ala Cys Glu Ala Asp Gly Val Arg Ala Arg Ile Ile Pro Val Asp  
                   6020                  6025                  6030  
 Tyr Ala Ser His Ser Ala His Val Glu Thr Ile Glu Ser Glu Leu Ala  
                   6035                  6040                  6045  
 Glu Val Leu Ala Gly Leu Ser Pro Arg Thr Pro Glu Val Pro Phe Phe  
                   6050                  6055                  6060  
 Ser Thr Leu Glu Gly Ala Trp Ile Thr Glu Pro Val Leu Asp Gly Thr  
                   6065                  6070                  6075                  6080  
 Tyr Trp Tyr Arg Asn Leu Arg His Arg Val Gly Phe Ala Pro Ala Val  
                   6085                  6090                  6095  
 Glu Thr Leu Ala Thr Asp Glu Gly Phe Thr His Phe Ile Glu Val Ser  
                   6100                  6105                  6110  
 Ala His Pro Val Leu Thr Met Thr Leu Pro Glu Thr Val Thr Gly Leu  
                   6115                  6120                  6125  
 Gly Thr Leu Arg Arg Glu Gln Gly Gly Gln Glu Arg Leu Val Thr Ser  
                   6130                  6135                  6140  
 Leu Ala Glu Ala Trp Thr Asn Gly Leu Thr Ile Asp Trp Ala Pro Val  
                   6145                  6150                  6155                  6160  
 Leu Pro Thr Ala Thr Gly His His Pro Glu Leu Pro Thr Tyr Ala Phe  
                   6165                  6170                  6175  
 Gln Arg Arg His Tyr Trp Leu His Asp Ser Pro Ala Val Gln Gly Ser  
                   6180                  6185                  6190  
 Val Gln Asp Ser Trp Arg Tyr Arg Ile Asp Trp Lys Arg Leu Ala Val  
                   6195                  6200                  6205  
 Ala Asp Ala Ser Glu Arg Ala Gly Leu Ser Gly Arg Trp Leu Val Val  
                   6210                  6215                  6220  
 Val Pro Glu Asp Arg Ser Ala Glu Ala Ala Pro Val Leu Ala Ala Leu  
                   6225                  6230                  6235                  6240  
 Ser Gly Ala Gly Ala Asp Pro Val Gln Leu Asp Val Ser Pro Leu Gly  
                   6245                  6250                  6255  
 Asp Arg Gln Arg Leu Ala Ala Thr Leu Gly Glu Ala Leu Ala Ala Ala  
                   6260                  6265                  6270  
 Gly Gly Ala Val Asp Gly Val Leu Ser Leu Leu Ala Trp Asp Glu Ser  
                   6275                  6280                  6285  
 Ala His Pro Gly His Pro Ala Pro Phe Thr Arg Gly Thr Gly Ala Thr  
                   6290                  6295                  6300  
 Leu Thr Leu Val Gln Ala Leu Glu Asp Ala Gly Val Ala Ala Pro Leu  
                   6305                  6310                  6315                  6320  
 Trp Cys Val Thr His Gly Ala Val Ser Val Gly Arg Ala Asp His Val  
                   6325                  6330                  6335

Thr Ser Pro Ala Gln Ala Met Val Trp Gly Met Gly Arg Val Ala Ala  
 6340 6345 6350  
 Leu Glu His Pro Glu Arg Trp Gly Gly Leu Ile Asp Leu Pro Ser Asp  
 6355 6360 6365  
 Ala Asp Arg Ala Ala Leu Asp Arg Met Thr Thr Val Leu Ala Gly Gly  
 6370 6375 6380  
 Thr Gly Glu Asp Gln Val Ala Val Arg Ala Ser Gly Leu Leu Ala Arg  
 6385 6390 6395 6400  
 Arg Leu Val Arg Ala Ser Leu Pro Ala His Gly Thr Ala Ser Pro Trp  
 6405 6410 6415  
 Trp Gln Ala Asp Gly Thr Val Leu Val Thr Gly Ala Glu Glu Pro Ala  
 6420 6425 6430  
 Ala Ala Glu Ala Ala Arg Arg Leu Ala Arg Asp Gly Ala Gly His Leu  
 6435 6440 6445  
 Leu Leu His Thr Thr Pro Ser Gly Ser Glu Gly Ala Glu Gly Thr Ser  
 6450 6455 6460  
 Gly Ala Ala Glu Asp Ser Gly Leu Ala Gly Leu Val Ala Glu Leu Ala  
 6465 6470 6475 6480  
 Asp Leu Gly Ala Thr Ala Thr Val Val Thr Cys Asp Leu Thr Asp Ala  
 6485 6490 6495  
 Glu Ala Ala Ala Arg Leu Leu Ala Gly Val Ser Asp Ala His Pro Leu  
 6500 6505 6510  
 Ser Ala Val Leu His Leu Pro Pro Thr Val Asp Ser Glu Pro Leu Ala  
 6515 6520 6525  
 Ala Thr Asp Ala Asp Ala Leu Ala Arg Val Val Thr Ala Lys Ala Thr  
 6530 6535 6540  
 Ala Ala Leu His Leu Asp Arg Leu Leu Arg Glu Ala Ala Ala Gly  
 6545 6550 6555 6560  
 Gly Arg Pro Pro Val Leu Val Leu Phe Ser Ser Val Ala Ala Ile Trp  
 6565 6570 6575  
 Gly Gly Ala Gly Gln Gly Ala Tyr Ala Ala Gly Thr Ala Phe Leu Asp  
 6580 6585 6590  
 Ala Leu Ala Gly Gln His Arg Ala Asp Gly Pro Thr Val Thr Ser Val  
 6595 6600 6605  
 Ala Trp Ser Pro Trp Glu Gly Ser Arg Val Thr Glu Gly Ala Thr Gly  
 6610 6615 6620  
 Glu Arg Leu Arg Arg Leu Gly Leu Arg Pro Leu Ala Pro Ala Thr Ala  
 6625 6630 6635 6640  
 Leu Thr Ala Leu Asp Thr Ala Leu Gly His Gly Asp Thr Ala Val Thr  
 6645 6650 6655  
 Ile Ala Asp Val Asp Trp Ser Ser Phe Ala Pro Gly Phe Thr Thr Ala  
 6660 6665 6670  
 Arg Pro Gly Thr Leu Leu Ala Asp Leu Pro Glu Ala Arg Arg Ala Leu  
 6675 6680 6685  
 Asp Glu Gln Gln Ser Thr Thr Ala Ala Asp Asp Thr Val Leu Ser Arg  
 6690 6695 6700  
 Glu Leu Gly Ala Leu Thr Gly Ala Glu Gln Gln Arg Arg Met Gln Glu  
 6705 6710 6715 6720  
 Leu Val Arg Glu His Leu Ala Val Val Leu Asn His Pro Ser Pro Glu  
 6725 6730 6735  
 Ala Val Asp Thr Gly Arg Ala Phe Arg Asp Leu Gly Phe Asp Ser Leu  
 6740 6745 6750  
 Thr Ala Val Glu Leu Arg Asn Arg Leu Lys Asn Ala Thr Gly Leu Ala  
 6755 6760 6765  
 Leu Pro Ala Thr Leu Val Phe Asp Tyr Pro Thr Pro Arg Thr Leu Ala  
 6770 6775 6780  
 Glu Phe Leu Leu Ala Glu Ile Leu Gly Glu Gln Ala Gly Ala Gly Glu  
 6785 6790 6795 6800  
 Gln Leu Pro Val Asp Gly Gly Val Asp Asp Glu Pro Val Ala Ile Val  
 6805 6810 6815  
 Gly Met Ala Cys Arg Leu Pro Gly Gly Val Ala Ser Pro Glu Asp Leu  
 6820 6825 6830

Trp Arg Leu Val Ala Gly Gly Glu Asp Ala Ile Ser Gly Phe Pro Gln  
 6835 6840 6845  
 Asp Arg Gly Trp Asp Val Glu Gly Leu Tyr Asp Pro Asp Pro Asp Ala  
 6850 6855 6860  
 Ser Gly Arg Thr Tyr Cys Arg Ala Gly Gly Phe Leu Asp Glu Ala Gly  
 6865 6870 6875 6880  
 Glu Phe Asp Ala Asp Phe Phe Gly Ile Ser Pro Arg Glu Ala Leu Ala  
 6885 6890 6895  
 Met Asp Pro Gln Gln Arg Leu Leu Leu Glu Thr Ser Trp Glu Ala Val  
 6900 6905 6910  
 Glu Asp Ala Gly Ile Asp Pro Thr Ser Leu Gln Gly Gln Gln Val Gly  
 6915 6920 6925  
 Val Phe Ala Gly Thr Asn Gly Pro His Tyr Glu Pro Leu Leu Arg Asn  
 6930 6935 6940  
 Thr Ala Glu Asp Leu Glu Gly Tyr Val Gly Thr Gly Asn Ala Ala Ser  
 6945 6950 6955 6960  
 Ile Met Ser Gly Arg Val Ser Tyr Thr Leu Gly Leu Glu Gly Pro Ala  
 6965 6970 6975  
 Val Thr Val Asp Thr Ala Cys Ser Ser Leu Val Ala Leu His Leu  
 6980 6985 6990  
 Ala Val Gln Ala Leu Arg Lys Gly Glu Cys Gly Leu Ala Leu Ala Gly  
 6995 7000 7005  
 Gly Val Thr Val Met Ser Thr Pro Thr Phe Val Glu Phe Ser Arg  
 7010 7015 7020  
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 Arg Leu Ser Asp Ala Arg Arg Asn Gly His Arg Val Leu Ala Val Val  
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 Arg Gly Ser Ala Val Asn Gln Asp Gly Ala Ser Asn Gly Leu Thr Ala  
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 Pro Asn Gly Pro Ser Gln Gln Arg Val Ile Arg Arg Ala Leu Ala Asp  
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 Gly Thr Arg Leu Gly Asp Pro Ile Glu Ala Gln Ala Leu Ile Ala Thr  
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 Tyr Gly Gln Gly Arg Asp Thr Glu Gln Pro Leu Arg Leu Gly Ser Leu  
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 Lys Ser Asn Ile Gly His Thr Gln Ala Ala Ala Gly Val Ser Gly Ile  
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 Ile Lys Met Val Gln Ala Met Arg His Gly Val Leu Pro Lys Thr Leu  
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 His Val Asp Arg Pro Ser Asp Gln Ile Asp Trp Ser Ala Gly Thr Val  
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 Glu Leu Leu Thr Glu Ala Met Asp Trp Pro Arg Lys Gln Glu Gly Gly  
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 His Ile Val Leu Glu Glu Ala Pro Val Asp Glu Asp Ala Pro Ala Asp  
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 Glu Pro Ser Val Gly Gly Val Val Pro Trp Leu Val Ser Ala Lys Thr  
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 Pro Ala Ala Leu Asp Ala Gln Ile Gly Arg Leu Ala Ala Phe Ala Ser  
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 Gln Gly Arg Thr Asp Ala Ala Asp Pro Gly Ala Val Ala Arg Val Leu  
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 Gly Gln Asp Asp Leu Ala Ala Leu Ala Ala Pro Glu Gly Leu Val  
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Arg Gly Val Ala Ser Gly Val Gly Arg Val Ala Phe Val Phe Pro Gly  
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 Lys Glu Phe Ala Ala Ala Met Ala Glu Cys Glu Ala Ala Leu Ala Pro  
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 Pro Thr Leu Glu Arg Val Asp Val Val Gln Pro Val Thr Phe Ala Val  
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 Lys Ser Ile Gly Ala His Leu Ala Gly Gln Gly Gly Met Leu Ser Leu  
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 Ile Ala Ile Arg Ala Thr Gly Leu Asn Phe Arg Asp Val Leu Ile Ala  
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 Asp Leu Ala Asp Val Lys Pro Gly Glu Arg Leu Leu Val His Ser Ala  
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 Leu Gly Pro Gly Gly Arg Phe Val Glu Met Gly Lys Thr Asp Val Arg  
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 Gln Ala Arg His Thr Gly Lys Val Val Leu Thr Met Pro Ser Gly Leu  
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 Asp Pro Glu Gly Thr Val Leu Leu Thr Gly Gly Thr Gly Ala Leu Gly  
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 Val His Glu Leu Glu Ala Leu Gly Ala Asp Val Ser Val Ala Ala Cys  
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 Pro Gly Tyr Asp Leu Ala Ala Phe Val Met Phe Ser Ser Ala Ala Ala  
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 Val Phe Gly Gly Ala Gly Gln Gly Ala Tyr Ala Ala Asn Ala Thr  
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Ala Gly Gly Ala Gly Glu Ala Asp Thr Asp Leu Gly Gly Arg Leu Ala  
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 Thr His Val Ala Thr Val Leu Gly His Gly Thr Pro Ser Arg Val Asp  
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 Leu Glu Arg Ala Phe Arg Asp Thr Gly Phe Asp Ser Leu Thr Ala Val  
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 Leu Ala Glu Leu Asp Arg Leu Glu Gly Val Leu Ala Ser Leu Ala Pro  
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 Ser Asp Asp Asp Leu Phe Ser Phe Ile Asp Lys Glu Leu Gly Asp Ser  
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 Met Pro Asn Ala Asp Leu Phe Val Gln Phe Ser Arg Gln Arg Gly Leu  
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 Gly Pro Ala Glu Gly Ala Gly Val Leu Leu Val Glu Arg Leu Ser Asp  
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 Ala Arg Arg Asn Gly His Arg Ile Leu Ala Val Val Arg Gly Ser Ala  
 9300 9305 9310

Val Asn Gln Asp Gly Ala Ser Asn Gly Leu Thr Ala Pro His Gly Pro  
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 Ser Gln Gln Arg Val Ile Arg Arg Ala Leu Ala Asp Ala Arg Leu Ala  
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 Lys Ser Ser Glu Gln Pro Leu Arg Leu Gly Ala Leu Lys Ser Asn Ile  
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Leu Asp Gly Thr Tyr Trp Tyr Arg Asn Leu Arg His Arg Val Gly Phe  
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Ala Leu Val Gly Gly Val Ala Val Leu Ala Thr Pro Gly Ala Phe Ile  
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 Pro Ala Val Glu Pro Pro Ala Gly Gly Val Val Pro Trp Pro Val  
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 Ala Tyr Ala Glu Asp Arg Thr Asp Val Asp Pro Ala Val Ala Ala Arg  
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 Ala Leu Val Asp Ser Arg Thr Ala Met Glu His Arg Ala Val Ala Val  
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 Ser Ala Pro Thr Leu Asp Arg Val Asp Val Val Gln Pro Val Thr Phe  
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 Val Ala Gly Ala Leu Thr Leu Asp Asp Ala Ala Arg Val Val Thr Leu  
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Val Leu Val Asp Pro Tyr Pro Pro Gly His Gln Glu Pro Ile Glu Val  
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 <212> DNA  
 <213> Streptomyces venezuelae

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120

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ctctgcccgc	cccggggccg	cgaactgacc	gcgcgccacc	gchacacgc	ccccccccccg	1200
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<210> 8

<211> 415

<212> PRT

<213> Streptomyces venezuelae

<400> 8

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					20			25				30			
Arg	Leu	Tyr	Glu	Arg	Leu	Asp	Arg	Ala	Leu	Asp	Ser	Gln	Trp	Leu	Ser
					35			40			45				
Asn	Gly	Gly	Pro	Leu	Val	Arg	Glu	Phe	Glu	Glu	Arg	Val	Ala	Gly	Leu
					50			55			60				
Ala	Gly	Val	Arg	His	Ala	Val	Ala	Thr	Cys	Asn	Ala	Thr	Ala	Gly	Leu
					65			70			75			80	
Gln	Leu	Leu	Ala	His	Ala	Ala	Gly	Leu	Thr	Gly	Glu	Val	Ile	Met	Pro
					85			90			95				
Ser	Met	Thr	Phe	Ala	Ala	Thr	Pro	His	Ala	Leu	Arg	Trp	Ile	Gly	Leu
					100			105			110				
Thr	Pro	Val	Phe	Ala	Asp	Ile	Asp	Pro	Asp	Thr	Gly	Asn	Leu	Asp	Pro
					115			120			125				
Asp	Gln	Val	Ala	Ala	Ala	Val	Thr	Pro	Arg	Thr	Ser	Ala	Val	Val	Gly
					130			135			140				
Val	His	Leu	Trp	Gly	Arg	Pro	Cys	Ala	Ala	Asp	Gln	Leu	Arg	Lys	Val
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Ala	Asp	Glu	His	Gly	Leu	Arg	Leu	Tyr	Phe	Asp	Ala	Ala	His	Ala	Leu
					165			170			175				
Gly	Cys	Ala	Val	Asp	Gly	Arg	Pro	Ala	Gly	Ser	Leu	Gly	Asp	Ala	Glu
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Val	Phe	Ser	Phe	His	Ala	Thr	Lys	Ala	Val	Asn	Ala	Phe	Glu	Gly	Gly
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					210			215			220				
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Asp	Ala	Phe	Pro	Glu	Val	Ile	Asp	Arg	Asn	Arg	Arg	Asn	His	Ala	Ala
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Tyr	Arg	Glu	His	Leu	Ala	Asp	Leu	Pro	Gly	Val	Leu	Val	Ala	Asp	His
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Glu	Ala	Thr	Thr	Gly	Ile	His	Arg	Asp	Leu	Val	Met	Glu	Val	Leu	Lys
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Ala	Glu	Gly	Val	His	Thr	Arg	Ala	Tyr	Phe	Ser	Pro	Gly	Cys	His	Glu
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Leu	Glu	Pro	Tyr	Arg	Gly	Gln	Pro	His	Ala	Pro	Leu	Pro	His	Thr	Glu
	340			345						350					
Arg	Leu	Ala	Ala	Arg	Val	Leu	Ser	Leu	Pro	Thr	Gly	Thr	Ala	Ile	Gly
	355				360					365					
Asp	Asp	Asp	Ile	Arg	Arg	Val	Ala	Asp	Leu	Leu	Arg	Leu	Cys	Ala	Thr
	370			375						380					
Arg	Gly	Arg	Glu	Leu	Thr	Ala	Arg	His	Arg	Asp	Thr	Ala	Pro	Ala	Pro
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<210> 9

<211> 1458

<212> DNA

<213> Streptomyces venezuelae

<400> 9

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cgggccctcc	tcgcccgtt	cgggcagggtc	ccggagctcc	gcacccgcgt	cgagaccggc	300
cccgccgggg	cgtactggaa	gaacaccctgt	ctcccgtcg	aacagcgcgg	cgcttcgac	360
gcggcgctcg	ccaggaagcc	cgtctcccg	tacagcgtcg	gcctctaccc	cgccccgacc	420
tgcatgttcc	gctgccactt	ctgcgtccgt	gtgaccggcg	cccgtctacga	cccgccggcc	480
ctcgacgccc	gcaacgcccatt	gttccgggtcg	gtcatcgacg	agatacccg	gggcaacccccc	540
tcggcgatgt	acttctccgg	cggcctggag	ccgctcacca	acccccggct	cgggagcctg	600
gccgcgcacg	ccaccgacca	cggcctgcgg	cccaccgtct	acacgaactc	cttcgcgctc	660
accgagcgca	ccctggagcg	ccagccccggc	ctctggggcc	tgcacgccat	ccgcacccctcg	720
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<211> 485

<212> PRT

<213> Streptomyces venezuelae

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 Pro Leu Glu Glu Ala Arg His Asp Leu Gly Val Asp Arg Asp Ala Phe  
 65 70 75 80  
 Arg Arg Leu Leu Ala Leu Phe Gly Gln Val Pro Glu Leu Arg Thr Ala  
 85 90 95  
 Val Glu Thr Gly Pro Ala Gly Ala Tyr Trp Lys Asn Thr Leu Leu Pro  
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 Cys His Phe Cys Val Arg Val Thr Gly Ala Arg Tyr Asp Pro Ser Ala  
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 Ala Gly Asn Pro Ser Ala Met Tyr Phe Ser Gly Gly Leu Glu Pro Leu  
 180 185 190  
 Thr Asn Pro Gly Leu Gly Ser Leu Ala Ala His Ala Thr Asp His Gly  
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 275 280 285  
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 325 330 335  
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 340 345 350  
 Glu Arg Thr Pro Gly Leu His Ile Asp Tyr Gly Tyr Ala Leu Asn Ser  
 355 360 365  
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 370 375 380  
 Met Arg Pro Thr Ala His Pro Gln Val Ala Val Gln Val Asp Leu Leu  
 385 390 395 400  
 Gly Asp Val Tyr Leu Tyr Arg Glu Ala Gly Phe Pro Asp Leu Asp Gly  
 405 410 415  
 Ala Thr Arg Tyr Ile Ala Gly Arg Val Thr Pro Asp Thr Ser Leu Thr  
 420 425 430  
 Glu Val Val Arg Asp Phe Val Glu Arg Gly Gly Glu Val Ala Ala Val  
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 Asp Gly Asp Glu Tyr Phe Met Asp Gly Phe Asp Gln Val Val Thr Ala  
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<210> 11  
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 <212> DNA  
 <213> Streptomyces venezuelae

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<213> Streptomyces venezuelae

<400> 12

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Met Ile Tyr Tyr Pro Leu Ser Val Leu Met Leu Gly Gly Ile Arg Glu      35
      40          45
Ile Gln Ile Ile Ser Thr Pro Gln His Ile Glu Leu Phe Gln Ser Leu      50
      55          60
Leu Gly Asn Gly Arg His Leu Gly Ile Glu Leu Asp Tyr Ala Val Gln      65
      70          75          80
Lys Glu Pro Ala Gly Ile Ala Asp Ala Leu Leu Val Gly Ala Glu His      85
      90          95
Ile Gly Asp Asp Thr Cys Ala Leu Ile Leu Gly Asp Asn Ile Phe His      100
      105         110
Gly Pro Gly Leu Tyr Thr Leu Leu Arg Asp Ser Ile Ala Arg Leu Asp      115
      120         125
Gly Cys Val Leu Phe Gly Tyr Pro Val Lys Asp Pro Glu Arg Tyr Gly      130
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Val Ala Glu Val Asp Ala Thr Gly Arg Leu Thr Asp Leu Val Glu Lys      145
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Pro Val Lys Pro Arg Ser Asn Leu Ala Val Thr Gly Leu Tyr Leu Tyr      165
      170         175
Asp Asn Asp Val Val Asp Ile Ala Lys Asn Ile Arg Pro Ser Pro Arg      180
      185         190
Gly Glu Leu Glu Ile Thr Asp Val Asn Arg Val Tyr Leu Glu Arg Gly      195
      200         205
Arg Ala Glu Leu Val Asn Leu Gly Arg Gly Phe Ala Trp Leu Asp Thr      210
      215         220
Gly Thr His Asp Ser Leu Leu Arg Ala Ala Gln Tyr Val Gln Val Leu      225
      230         235         240
Glu Glu Arg Gln Gly Val Trp Ile Ala Gly Leu Glu Glu Ile Ala Phe      245
      250         255
Arg Met Gly Phe Ile Asp Ala Glu Ala Cys His Gly Leu Gly Glu Gly      260
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<210> 13  
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 <213> Streptomyces venezuelae

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tactccctcg	acggcggcg	gatcgagcg	gagctcggt	accgcccgc	ggtctccttc	900
gcccacggcc	tcgcgggac	cgtccgtgg	taccgggaga	accggggctg	gtggagccg	960
ctcaaggcga	ccgccccgca	gtgcccggc	accgcgtgg	aggtgtccgc	gtga	1014

<210> 14  
 <211> 337  
 <212> PRT  
 <213> Streptomyces venezuelae

<400> 14

Met	Arg	Leu	Leu	Val	Thr	Gly	Gly	Ala	Gly	Phe	Ile	Gly	Ser	His	Phe	
1																
														15		
Val	Arg	Gln	Leu	Leu	Ala	Gly	Ala	Tyr	Pro	Asp	Val	Pro	Ala	Asp	Glu	
														30		
Val	Ile	Val	Leu	Asp	Ser	Leu	Thr	Tyr	Ala	Gly	Asn	Arg	Ala	Asn	Leu	
														45		
Ala	Pro	Val	Asp	Ala	Asp	Pro	Arg	Leu	Arg	Phe	Val	His	Gly	Asp	Ile	
														60		
Arg	Asp	Ala	Gly	Leu	Leu	Ala	Arg	Glu	Leu	Arg	Gly	Val	Asp	Ala	Ile	
														80		
Val	His	Phe	Ala	Ala	Glu	Ser	His	Val	Asp	Arg	Ser	Ile	Ala	Gly	Ala	
														95		
Ser	Val	Phe	Thr	Glu	Thr	Asn	Val	Gln	Gly	Thr	Gln	Thr	Leu	Leu	Gln	
														110		
Cys	Ala	Val	Asp	Ala	Gly	Val	Gly	Arg	Val	Val	His	Val	Ser	Thr	Asp	
														125		
Glu	Val	Tyr	Gly	Ser	Ile	Asp	Ser	Gly	Ser	Trp	Thr	Glu	Ser	Ser	Pro	
														140		
Leu	Glu	Pro	Asn	Ser	Pro	Tyr	Ala	Ala	Ser	Lys	Ala	Gly	Ser	Asp	Leu	
														160		
Val	Ala	Arg	Ala	Tyr	His	Arg	Thr	Tyr	Gly	Leu	Asp	Val	Arg	Ile	Thr	
														175		
Arg	Cys	Cys	Asn	Asn	Tyr	Gly	Pro	Tyr	Gln	His	Pro	Glu	Lys	Leu	Ile	
														190		
Pro	Leu	Phe	Val	Thr	Asn	Leu	Leu	Asp	Gly	Gly	Thr	Leu	Pro	Leu	Tyr	
														205		
Gly	Asp	Gly	Ala	Asn	Val	Arg	Glu	Trp	Val	His	Thr	Asp	Asp	His	Cys	
														220		
Arg	Gly	Ile	Ala	Leu	Val	Leu	Ala	Gly	Arg	Ala	Gly	Glu	Ile	Tyr		
														240		
His	Ile	Gly	Gly	Gly	Leu	Glu	Leu	Leu	Thr	Asn	Arg	Glu	Leu	Thr	Gly	Ile
														255		

Leu Leu Asp Ser Leu Gly Ala Asp Trp Ser Ser Val Arg Lys Val Ala  
 260 265 270  
 Asp Arg Lys Gly His Asp Leu Arg Tyr Ser Leu Asp Gly Gly Glu Ile  
 275 280 285  
 Glu Arg Glu Leu Gly Tyr Arg Pro Gln Val Ser Phe Ala Asp Gly Leu  
 290 295 300  
 Ala Arg Thr Val Arg Trp Tyr Arg Glu Asn Arg Gly Trp Trp Glu Pro  
 305 310 315 320  
 Leu Lys Ala Thr Ala Pro Gln Leu Pro Ala Thr Ala Val Glu Val Ser  
 325 330 335  
 Ala

<210> 15  
 <211> 1140  
 <212> DNA  
 <213> Streptomyces venezuelae

<400> 15  
 gtgagcagcc ggcggcggagac ccccccgcgtc cccttcctcg acctcaaggc cgcctacgag 60  
 gagctcccgcg cggagaccga cgccgcgatc gcccgcgtcc tcgactcggt ggcgtaccc 120  
 ctcggaccccg aactcgaagg attcgaggcg gagttcgccg cgtactcgaa gacggaccac 180  
 gccgtcggcg tgaacacgcgg gatggacgccc ctccagctcg ccctccggcg cctccggcatc 240  
 ggacccgggg acgagggtat cgtccctcg cacacgtaca tcgcccagctg gctcgcggtg 300  
 tccgcacccg ggcgcgacccc cgtgcggcgtc gagccgcacg aggaccaccc caccctggac 360  
 cccgtcgtcg tcgagaaggc gatcaccccc cgacccggg cgctcctccc cgtccaccc 420  
 tacgggcacc cccggacat ggacggccctc cgcgagctcg cggacccggca cggcctgcac 480  
 atcgtcgagg acgcccgcga ggcccacggc gcccgttacc gggggccggcg gatccggcc 540  
 gggtcgtcgg tggccgcgtt cagcttctac cccggcaaga acctcggctg cttccggc 600  
 ggcggcgcgg tcgtcaccgg cgaccccgag ctcgcgaac ggctccggat gctccgcaac 660  
 tacggctcgc ggcagaagta cagccacggg acgaaggcga ccaactcccg cctggacgag 720  
 atgcaggccg cctgtgtcgatccggctc gcccacctgg acagctggaa cggccgcagg 780  
 tcggcgctgg cccggagta cctctccggg ctcgcggac tgcccggat cggcctgc 840  
 gtgaccgcgc cccgacaccga cccggctctgg cacctttca cctgtgcgcac cggccgcgc 900  
 gacgagctgc gcaagccaccc cgacggccgc ggcacatcgaca ccctcacgca ctacccggta 960  
 cccgtgcacc tctcgccccgc ctacgcgggc gaggcacccgc cggaaaggctc gctcccg 1020  
 gccgagagct tcgcgcggca ggtcctcagc ctgcccgtatcg gccccgacact ggagcgc 1080  
 caggcgctgc ggggtatcgca cggccgtgcgc gaatggccgc agcgggtcga ccaggctag 1140

<210> 16  
 <211> 379  
 <212> PRT  
 <213> Streptomyces venezuelae

<400> 16  
 Met Ser Ser Arg Ala Glu Thr Pro Arg Val Pro Phe Leu Asp Leu Lys  
 1 5 10 15  
 Ala Ala Tyr Glu Glu Leu Arg Ala Glu Thr Asp Ala Ala Ile Ala Arg  
 20 25 30  
 Val Leu Asp Ser Gly Arg Tyr Leu Leu Gly Pro Glu Leu Glu Gly Phe  
 35 40 45  
 Glu Ala Glu Phe Ala Ala Tyr Cys Glu Thr Asp His Ala Val Gly Val  
 50 55 60  
 Asn Ser Gly Met Asp Ala Leu Gln Leu Ala Leu Arg Gly Leu Gly Ile  
 65 70 75 80  
 Gly Pro Gly Asp Glu Val Ile Val Pro Ser His Thr Tyr Ile Ala Ser  
 85 90 95  
 Trp Leu Ala Val Ser Ala Thr Gly Ala Thr Pro Val Pro Val Glu Pro  
 100 105 110  
 His Glu Asp His Pro Thr Leu Asp Pro Leu Leu Val Glu Lys Ala Ile  
 115 120 125

Thr Pro Arg Thr Arg Ala Leu Leu Pro Val His Leu Tyr Gly His Pro  
 130 135 140  
 Ala Asp Met Asp Ala Leu Arg Glu Leu Ala Asp Arg His Gly Leu His  
 145 150 155 160  
 Ile Val Glu Asp Ala Ala Gln Ala His Gly Ala Arg Tyr Arg Gly Arg  
 165 170 175  
 Arg Ile Gly Ala Gly Ser Ser Val Ala Ala Phe Ser Phe Tyr Pro Gly  
 180 185 190  
 Lys Asn Leu Gly Cys Phe Gly Asp Gly Gly Ala Val Val Thr Gly Asp  
 195 200 205  
 Pro Glu Leu Ala Glu Arg Leu Arg Met Leu Arg Asn Tyr Gly Ser Arg  
 210 215 220  
 Gln Lys Tyr Ser His Glu Thr Lys Gly Thr Asn Ser Arg Leu Asp Glu  
 225 230 235 240  
 Met Gln Ala Ala Val Leu Arg Ile Arg Leu Ala His Leu Asp Ser Trp  
 245 250 255  
 Asn Gly Arg Arg Ser Ala Leu Ala Ala Glu Tyr Leu Ser Gly Leu Ala  
 260 265 270  
 Gly Leu Pro Gly Ile Gly Leu Pro Val Thr Ala Pro Asp Thr Asp Pro  
 275 280 285  
 Val Trp His Leu Phe Thr Val Arg Thr Glu Arg Arg Asp Glu Leu Arg  
 290 295 300  
 Ser His Leu Asp Ala Arg Gly Ile Asp Thr Leu Thr His Tyr Pro Val  
 305 310 315 320  
 Pro Val His Leu Ser Pro Ala Tyr Ala Gly Glu Ala Pro Pro Glu Gly  
 325 330 335  
 Ser Leu Pro Arg Ala Glu Ser Phe Ala Arg Gln Val Leu Ser Leu Pro  
 340 345 350  
 Ile Gly Pro His Leu Glu Arg Pro Gln Ala Leu Arg Val Ile Asp Ala  
 355 360 365  
 Val Arg Glu Trp Ala Glu Arg Val Asp Gln Ala  
 370 375

<210> 17

<211> 714

<212> DNA

<213> Streptomyces venezuelae

<400> 17

gtgtacgaag	tcgaccacgc	cgacgtctac	gacccttct	acctgggtcg	cgccaaggac	60
tacgcgcggc	aggcctccga	catcgccgac	ctgggtcgct	cccgtacccc	cgaggcctcc	120
tcgctcctgg	acgtggctcg	cggtaacgggc	acgcatactgg	agcacttcac	caaggagttc	180
ggcgacacccg	ccggccctgg	gctgtccgag	gacatgctca	cccacgccc	caagcggctg	240
cccgacgcca	cgctccacca	gggcgacatcg	cgggacttcc	ggctcggccg	gaagttctcc	300
gccgtggtca	gcatgttcag	ctccgtcgcc	tacctgaaga	cgaccgagga	actcggcgcg	360
gccgtcgccct	cgttcgcgg	gcacctggag	cccggtggcg	tcgtcgctgt	cgagccgtgg	420
tggttcccg	agaccttcgc	cgacggctgg	gtcagcgccg	acgtcgctcg	ccgtgacggg	480
cgcaccgtgg	cccggtgtctc	gcaactcggtg	cgggagggga	acgcgacgcg	catggaggtc	540
cacttcaccg	tggccgaccc	gggcaagggc	gtgcggcact	tctccgacgt	ccatctcatc	600
accctgttcc	accaggccga	gtacgaggcc	gctttcacgg	ccgcccggct	gcgctcgag	660
tacctggagg	gcccggcgt	ggggccgtggc	ctcttcgtcg	gcgtccccgc	ctga	714

<210> 18

<211> 237

<212> PRT

<213> Streptomyces venezuelae

<400> 18

Met	Tyr	Glu	Val	Asp	His	Ala	Asp	Val	Tyr	Asp	Leu	Phe	Tyr	Leu	Gly
1	5	10	15												
Arg	Gly	Lys	Asp	Tyr	Ala	Ala	Glu	Ala	Ser	Asp	Ile	Ala	Asp	Leu	Val
20	25	30													

Arg Ser Arg Thr Pro Glu Ala Ser Ser Leu Leu Asp Val Ala Cys Gly  
 35 40 45  
 Thr Gly Thr His Leu Glu His Phe Thr Lys Glu Phe Gly Asp Thr Ala  
 50 55 60  
 Gly Leu Glu Leu Ser Glu Asp Met Leu Thr His Ala Arg Lys Arg Leu  
 65 70 75 80  
 Pro Asp Ala Thr Leu His Gln Gly Asp Met Arg Asp Phe Arg Leu Gly  
 85 90 95  
 Arg Lys Phe Ser Ala Val Val Ser Met Phe Ser Ser Val Gly Tyr Leu  
 100 105 110  
 Lys Thr Thr Glu Glu Leu Gly Ala Ala Val Ala Ser Phe Ala Glu His  
 115 120 125  
 Leu Glu Pro Gly Gly Val Val Val Glu Pro Trp Trp Phe Pro Glu  
 130 135 140  
 Thr Phe Ala Asp Gly Trp Val Ser Ala Asp Val Val Arg Arg Asp Gly  
 145 150 155 160  
 Arg Thr Val Ala Arg Val Ser His Ser Val Arg Glu Gly Asn Ala Thr  
 165 170 175  
 Arg Met Glu Val His Phe Thr Val Ala Asp Pro Gly Lys Gly Val Arg  
 180 185 190  
 His Phe Ser Asp Val His Leu Ile Thr Leu Phe His Gln Ala Glu Tyr  
 195 200 205  
 Glu Ala Ala Phe Thr Ala Ala Gly Leu Arg Val Glu Tyr Leu Glu Gly  
 210 215 220  
 Gly Pro Ser Gly Arg Gly Leu Phe Val Gly Val Pro Ala  
 225 230 235

<210> 19

<211> 1281

<212> DNA

<213> Streptomyces venezuelae

<400> 19

atgcgcgtcc	tgctgacctc	gttcgcacat	cacacgcact	actacggcct	ggtccccctg	60
gcctgggcgc	tgctcgccgc	cgggcacgag	gtgcgggtcg	ccagccagcc	cgcgtcacg	120
gacaccatca	ccgggtccgg	gctcgccgc	gtgcgggtcg	gcaccgacca	cctcatccac	180
gaggaccggg	tgcgatggc	gggcgagccg	cgcggaaacc	atccggcgat	cgccttcgac	240
gaggccccgtc	ccgagccgct	ggactgggac	cacgcctcg	gcatcgaggc	gatcctcgcc	300
ccgtacttcc	atctgctcgc	caacaacgac	tcgatggtcg	acgacctcg	cgacttcgccc	360
cggcctctggc	agccggaccc	ggtgctgtgg	gagccgacga	cctacgcggg	cgcgtcgcc	420
gcccagggtca	ccgggtccgc	gcacgcccgg	gtcctgtggg	ggcccgacgt	gatgggcagc	480
gcccggccca	agttcgctgc	gctgcgggac	cggcagccgc	ccgagcacccg	cgaggaccccc	540
accgcggagt	ggctgacgtg	gacgctcgac	cggtaacggcg	cctccttcga	agaggagactg	600
ctcaccggcc	agttcacgt	cgacccgacc	ccgcccggcc	tgccctcga	cacgggcctg	660
ccgaccgtcg	ggatgcgtta	tgttccgtac	aacggcacgt	cggtcggtgcc	ggactggctg	720
agtgagccgc	ccgcgcggcc	ccgggtctgc	ctgaccctcg	gcgtctccgc	gcgtgaggtc	780
ctcggcggcg	acggcgctc	gcaggcggac	atcctggagg	cgctcgccga	cctcgacatc	840
gagctcgctg	ccacgctcga	cgcgagtcag	cgcgcgaga	tccgcaacta	cccgaagcac	900
acccgggtca	cggacttcgt	gccgatgcac	gcccgtctgc	cgagctgctc	ggcgtatcatc	960
caccacggcg	gggcgggcac	ctacgcgacc	gccgtatca	acgcggtgcc	gcaggtcatg	1020
ctcgccgagc	tgtgggacgc	gccggtaaag	gcccggccg	tcgcccggaga	gggggggggg	1080
ttcttcctgc	cgccggccga	gctcacgccc	caggccgtgc	gggacggccgt	cggtccgcac	1140
ctcgacgacc	cctcggtcgc	caccgcgcgc	caccggctgc	gcgaggagac	cttcggcgac	1200
cccaccccccgg	ccgggatcgt	ccccgagctg	gagcggctcg	ccgcgcagca	ccgcccggccg	1260
ccggccgacg	cccgccactg	a				1281

<210> 20

<211> 426

<212> PRT

<213> Streptomyces venezuelae

<400> 20

Met Arg Val Leu Leu Thr Ser Phe Ala His His Thr His Tyr Tyr Gly  
1 5 10 15  
Leu Val Pro Leu Ala Trp Ala Leu Leu Ala Ala Gly His Glu Val Arg  
20 25 30  
Val Ala Ser Gln Pro Ala Leu Thr Asp Thr Ile Thr Gly Ser Gly Leu  
35 40 45  
Ala Ala Val Pro Val Gly Thr Asp His Leu Ile His Glu Tyr Arg Val  
50 55 60  
Arg Met Ala Gly Glu Pro Arg Pro Asn His Pro Ala Ile Ala Phe Asp  
65 70 75 80  
Glu Ala Arg Pro Glu Pro Leu Asp Trp Asp His Ala Leu Gly Ile Glu  
85 90 95  
Ala Ile Leu Ala Pro Tyr Phe His Leu Leu Ala Asn Asn Asp Ser Met  
100 105 110  
Val Asp Asp Leu Val Asp Phe Ala Arg Ser Trp Gln Pro Asp Leu Val  
115 120 125  
Leu Trp Glu Pro Thr Thr Tyr Ala Gly Ala Val Ala Ala Gln Val Thr  
130 135 140  
Gly Ala Ala His Ala Arg Val Leu Trp Gly Pro Asp Val Met Gly Ser  
145 150 155 160  
Ala Arg Arg Lys Phe Val Ala Leu Arg Asp Arg Gln Pro Pro Glu His  
165 170 175  
Arg Glu Asp Pro Thr Ala Glu Trp Leu Thr Trp Thr Leu Asp Arg Tyr  
180 185 190  
Gly Ala Ser Phe Glu Glu Glu Leu Leu Thr Gly Gln Phe Thr Ile Asp  
195 200 205  
Pro Thr Pro Pro Ser Leu Arg Leu Asp Thr Gly Leu Pro Thr Val Gly  
210 215 220  
Met Arg Tyr Val Pro Tyr Asn Gly Thr Ser Val Val Pro Asp Trp Leu  
225 230 235 240  
Ser Glu Pro Pro Ala Arg Pro Arg Val Cys Leu Thr Leu Gly Val Ser  
245 250 255  
Ala Arg Glu Val Leu Gly Gly Asp Gly Val Ser Gln Gly Asp Ile Leu  
260 265 270  
Glu Ala Leu Ala Asp Leu Asp Ile Glu Leu Val Ala Thr Leu Asp Ala  
275 280 285  
Ser Gln Arg Ala Glu Ile Arg Asn Tyr Pro Lys His Thr Arg Phe Thr  
290 295 300  
Asp Phe Val Pro Met His Ala Leu Leu Pro Ser Cys Ser Ala Ile Ile  
305 310 315 320  
His His Gly Gly Ala Gly Thr Tyr Ala Thr Ala Val Ile Asn Ala Val  
325 330 335  
Pro Gln Val Met Leu Ala Glu Leu Trp Asp Ala Pro Val Lys Ala Arg  
340 345 350  
Ala Val Ala Glu Gln Gly Ala Gly Phe Phe Leu Pro Pro Ala Glu Leu  
355 360 365  
Thr Pro Gln Ala Val Arg Asp Ala Val Val Arg Ile Leu Asp Asp Pro  
370 375 380  
Ser Val Ala Thr Ala Ala His Arg Leu Arg Glu Glu Thr Phe Gly Asp  
385 390 395 400  
Pro Thr Pro Ala Gly Ile Val Pro Glu Leu Glu Arg Leu Ala Ala Gln  
405 410 415  
His Arg Arg Pro Pro Ala Asp Ala Arg His  
420 425

<210> 21

<211> 1209

<212> DNA

<213> Streptomyces venezuelae

<400> 21

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gtggccgacc	gtgaactcg	caccaccc	ctggagaccc	gcggcatcca	ctggatccac	120
gcccgaaacg	gcgaccgc	cgccaccgt	ctgcgcggcc	aggcggacga	cccgatccc	180
gcgtacgac	gggtgcgtc	ccgcggcg	ctctccttca	gcccgcacgg	cagctgggtc	240
accgcccata	acgcctggc	ggcgagcatc	ctctgctcga	cgacttcgg	ggtctccggc	300
gccgacggcg	tcccggtgcc	gcagcagg	ctctcgta	gggagggctg	tccgtggag	360
cgcgagcagg	tgctggccgc	ggccgggtac	tgccggagg	gcggggcagcg	tgcgtggtc	420
gaggggatcc	accgggagac	gctggaggg	ctcgccccc	accggcgcgc	gtcgatcgcc	480
ttcgagctgc	tggcggtt	cgtccccc	gcgggtacgg	ccgctgcgc	cgcgtgtcg	540
ggtgttcccg	cggaccggcg	cgcggacttc	gcggatctc	tggagcggt	ccggccgtg	600
tccgacagcc	tgctggcccc	gcagtcctg	cggacgg	gggcggcg	cggcgcgtg	660
gccgagctca	cggcgtgtc	cgccgatcg	gacgactccc	ccggggccct	gctgtcgccg	720
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cccgagcagt	ggcgggagct	gtgcgaccgg	cccggtctc	ccgcggccgc	ggtgaggag	840
accctccgt	acgaccgc	ggtgca	gacgcccgg	ttgtccgcgg	ggagacggag	900
ctggcgggccc	ggcggtgc	ggccgggg	catgtcg	tcctgaccgc	cgcgaccggc	960
cgggaccgg	aggcttcac	ggacccggag	cgcttcgacc	tcgcgcgc	cgacgccc	1020
gcgcaccccg	cgctgcaccc	cgccgg	tacggccgg	ttggcgtccct	ggtcggctt	1080
caggcggagg	tcgcgtgc	gaccctggcc	gggcgttcc	ccgggctgcg	gcaggcgggg	1140
gacgtgctcc	gccccggcg	cgccgc	ggccgcgg	cgctgagcgt	cccggtcagc	1200
agctcctga						1209

<210> 22

<211> 402

<212> PRT

<213> Streptomyces venezuelae

<400> 22

Met	Thr	Asp	Asp	Leu	Thr	Gly	Ala	Leu	Thr	Gln	Pro	Pro	Leu	Gly	Arg
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Thr	Val	Arg	Ala	Val	Ala	Asp	Arg	Glu	Leu	Gly	Thr	His	Leu	Leu	Glu
				20				25					30		
Thr	Arg	Gly	Ile	His	Trp	Ile	His	Ala	Ala	Asn	Gly	Asp	Pro	Tyr	Ala
				35				40					45		
Thr	Val	Leu	Arg	Gly	Gln	Ala	Asp	Asp	Pro	Tyr	Pro	Ala	Tyr	Glu	Arg
				50				55				60			
Val	Arg	Ala	Arg	Gly	Ala	Leu	Ser	Phe	Ser	Pro	Thr	Gly	Ser	Trp	Val
				65				70			75		80		
Thr	Ala	Asp	His	Ala	Leu	Ala	Ala	Ser	Ile	Leu	Cys	Ser	Thr	Asp	Phe
				85				90				95			
Gly	Val	Ser	Gly	Ala	Asp	Gly	Val	Pro	Val	Pro	Gln	Gln	Val	Leu	Ser
				100				105				110			
Tyr	Gly	Glu	Gly	Cys	Pro	Leu	Glu	Arg	Glu	Gln	Val	Leu	Pro	Ala	Ala
				115				120				125			
Gly	Asp	Val	Pro	Glu	Gly	Gly	Gln	Arg	Ala	Val	Val	Glu	Gly	Ile	His
				130				135				140			
Arg	Glu	Thr	Leu	Glu	Gly	Leu	Ala	Pro	Asp	Pro	Ser	Ala	Ser	Tyr	Ala
				145				150			155		160		
Phe	Glu	Leu	Leu	Gly	Gly	Phe	Val	Arg	Pro	Ala	Val	Thr	Ala	Ala	
				165				170				175			
Ala	Ala	Val	Leu	Gly	Val	Pro	Ala	Asp	Arg	Arg	Ala	Asp	Phe	Ala	Asp
				180				185				190			
Leu	Leu	Glu	Arg	Leu	Arg	Pro	Leu	Ser	Asp	Ser	Leu	Leu	Ala	Pro	Gln
				195				200				205			
Ser	Leu	Arg	Thr	Val	Arg	Ala	Ala	Asp	Gly	Ala	Leu	Ala	Glu	Leu	Thr
				210				215				220			
Ala	Leu	Leu	Ala	Asp	Ser	Asp	Asp	Ser	Pro	Gly	Ala	Leu	Leu	Ser	Ala
				225				230			235		240		
Leu	Gly	Val	Thr	Ala	Ala	Val	Gln	Leu	Thr	Gly	Asn	Ala	Val	Leu	Ala
				245				250				255			

Leu Leu Ala His Pro Glu Gln Trp Arg Glu Leu Cys Asp Arg Pro Gly  
 260 265 270  
 Leu Ala Ala Ala Ala Val Glu Glu Thr Leu Arg Tyr Asp Pro Pro Val  
 275 280 285  
 Gln Leu Asp Ala Arg Val Val Arg Gly Glu Thr Glu Leu Ala Gly Arg  
 290 295 300  
 Arg Leu Pro Ala Gly Ala His Val Val Val Leu Thr Ala Ala Thr Gly  
 305 310 315 320  
 Arg Asp Pro Glu Val Phe Thr Asp Pro Glu Arg Phe Asp Leu Ala Arg  
 325 330 335  
 Pro Asp Ala Ala Ala His Leu Ala Leu His Pro Ala Gly Pro Tyr Gly  
 340 345 350  
 Pro Val Ala Ser Leu Val Arg Leu Gln Ala Glu Val Ala Leu Arg Thr  
 355 360 365  
 Leu Ala Gly Arg Phe Pro Gly Leu Arg Gln Ala Gly Asp Val Leu Arg  
 370 375 380  
 Pro Arg Arg Ala Pro Val Gly Arg Gly Pro Leu Ser Val Pro Val Ser  
 385 390 395 400  
 Ser Ser

<210> 23  
 <211> 2430  
 <212> DNA  
 <213> Streptomyces venezuelae

<400> 23

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gccgcgcaca	cggccaaatgt	tcagtagacacg	agccgggcgg	cggagctcgt	cgcccaagatg	180
acgctcgacg	agaagatcag	cttcgtccac	tgggcgttgg	accccgacccg	gcagaacgtc	240
ggctacacctc	ccggcgtgccc	cgctctgggc	atcccgagc	tgcgtgccgc	cgacggcccg	300
aacggcatcc	gcctgggtgg	gcagacccgc	accgcgtcgc	ccgcgcgggt	cgccctggcc	360
agcaccttcg	acgcacccat	ggccgcacgc	tacggcaagg	tcatgggcgg	cgacggtcgc	420
gctgtcaacc	aggacatggt	cctggggcccg	atgatgaaaca	acatccgggt	gccgcacggc	480
ggccggaact	acgagacctt	cagcgaggac	cccctggct	cctcgccac	cgcggtcgcc	540
cagatcaagg	gcatccaggg	tgccggctctg	atgaccacgg	ccaagcactt	cgcgccaaac	600
aaccaggaga	acaaccgctt	ctccgtgaac	gccaatgtcg	acgagcagac	gctccgcgag	660
atcgagttcc	cggcggtcga	ggcgccctcc	aaggccggcg	ccgcctcctt	catgtgtgcc	720
tacaacggcc	tcaacggaa	gcgtcctgc	ggcaacgacg	agctcctcaa	caacgtgtcg	780
cgcacgcagt	ggggcttcca	gggctgggt	atgtccgact	ggctcgccac	cccgccgacc	840
gacgcacatca	ccaaggggct	cgaccaggag	atgggcgtcg	agctccccgg	cgacgtcccg	900
aaggggcgagc	cctcgccgccc	ggccaagttc	ttcggcgagg	cgctgaagac	ggccgtcctg	960
aacggcacgg	tccccgaggc	ggccgtgacg	cggtcggcg	agcggatcgt	cgcccaagatg	1020
gagaagttcg	gtctgttcct	cgccactccg	gcccgcggc	ccgagcgcga	caaggcggt	1080
gcccaggcggt	tgtcccgcaa	ggtcggcgag	aacggcgccg	tgctcctgcg	caacgaggc	1140
caggccctgc	cgctcgccgg	tgacggcgcc	aagagcatcg	cggtcatcg	cccgacggcc	1200
gtcgacccca	aggtcacccgg	cctgggcacg	gcccacgtcg	tcccgactc	ggcggccggcg	1260
ccactcgaca	ccatcaaggc	ccgcgcgggt	gcccggcgca	cggtgacgta	cgagacgggt	1320
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caggcgaaga	agaagctcg	gggctacacg	aaggcttcgc	tcgcccggg	cgaggcgaag	2340
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<210> 24

<211> 809

<212> PRT

<213> Streptomyces venezuelae

<400> 24

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					20				25					30	
Thr	Val	Ala	Ala	Ala	Ala	Pro	Gly	Ala	Ala	Asp	Thr	Ala	Asn	Val	Gln
					35			40			45				
Tyr	Thr	Ser	Arg	Ala	Ala	Glu	Leu	Val	Ala	Gln	Met	Thr	Leu	Asp	Glu
					50			55			60				
Lys	Ile	Ser	Phe	Val	His	Trp	Ala	Leu	Asp	Pro	Asp	Arg	Gln	Asn	Val
					65			70			75			80	
Gly	Tyr	Leu	Pro	Gly	Val	Pro	Arg	Leu	Gly	Ile	Pro	Glu	Leu	Arg	Ala
					85			90			95				
Ala	Asp	Gly	Pro	Asn	Gly	Ile	Arg	Leu	Val	Gly	Gln	Thr	Ala	Thr	Ala
					100			105			110				
Leu	Pro	Ala	Pro	Val	Ala	Leu	Ala	Ser	Thr	Phe	Asp	Asp	Thr	Met	Ala
					115			120			125				
Asp	Ser	Tyr	Gly	Lys	Val	Met	Gly	Arg	Asp	Gly	Arg	Ala	Leu	Asn	Gln
					130			135			140				
Asp	Met	Val	Leu	Gly	Pro	Met	Met	Asn	Asn	Ile	Arg	Val	Pro	His	Gly
					145			150			155			160	
Gly	Arg	Asn	Tyr	Glu	Thr	Phe	Ser	Glu	Asp	Pro	Leu	Val	Ser	Ser	Arg
					165			170			175				
Thr	Ala	Val	Ala	Gln	Ile	Lys	Gly	Ile	Gln	Gly	Ala	Gly	Leu	Met	Thr
					180			185			190				
Thr	Ala	Lys	His	Phe	Ala	Ala	Asn	Asn	Gln	Glu	Asn	Asn	Arg	Phe	Ser
					195			200			205				
Val	Asn	Ala	Asn	Val	Asp	Glu	Gln	Thr	Leu	Arg	Glu	Ile	Glu	Phe	Pro
					210			215			220				
Ala	Phe	Glu	Ala	Ser	Ser	Lys	Ala	Gly	Ala	Ala	Ser	Phe	Met	Cys	Ala
					225			230			235			240	
Tyr	Asn	Gly	Leu	Asn	Gly	Lys	Pro	Ser	Cys	Gly	Asn	Asp	Glu	Leu	Leu
					245			250			255				
Asn	Asn	Val	Leu	Arg	Thr	Gln	Trp	Gly	Phe	Gln	Gly	Trp	Val	Met	Ser
					260			265			270				
Asp	Trp	Leu	Ala	Thr	Pro	Gly	Thr	Asp	Ala	Ile	Thr	Lys	Gly	Leu	Asp
					275			280			285				
Gln	Glu	Met	Gly	Val	Glu	Leu	Pro	Gly	Asp	Val	Pro	Lys	Gly	Glu	Pro
					290			295			300				
Ser	Pro	Pro	Ala	Lys	Phe	Phe	Gly	Glu	Ala	Leu	Lys	Thr	Ala	Val	Leu
					305			310			315			320	
Asn	Gly	Thr	Val	Pro	Glu	Ala	Ala	Val	Thr	Arg	Ser	Ala	Glu	Arg	Ile
					325			330			335				
Val	Gly	Gln	Met	Glu	Lys	Phe	Gly	Leu	Leu	Leu	Ala	Thr	Pro	Ala	Pro
					340			345			350				
Arg	Pro	Glu	Arg	Asp	Lys	Ala	Gly	Ala	Gln	Ala	Val	Ser	Arg	Lys	Val
					355			360			365				
Ala	Glu	Asn	Gly	Ala	Val	Leu	Leu	Arg	Asn	Glu	Gly	Gln	Ala	Leu	Pro
					370			375			380				

Leu Ala Gly Asp Ala Gly Lys Ser Ile Ala Val Ile Gly Pro Thr Ala  
 385 390 395 400  
 Val Asp Pro Lys Val Thr Gly Leu Gly Ser Ala His Val Val Pro Asp  
 405 410 415  
 Ser Ala Ala Ala Pro Leu Asp Thr Ile Lys Ala Arg Ala Gly Ala Gly  
 420 425 430  
 Ala Thr Val Thr Tyr Glu Thr Gly Glu Glu Thr Phe Gly Thr Gln Ile  
 435 440 445  
 Pro Ala Gly Asn Leu Ser Pro Ala Phe Asn Gln Gly His Gln Leu Glu  
 450 455 460  
 Pro Gly Lys Ala Gly Ala Leu Tyr Asp Gly Thr Leu Thr Val Pro Ala  
 465 470 475 480  
 Asp Gly Glu Tyr Arg Ile Ala Val Arg Ala Thr Gly Gly Tyr Ala Thr  
 485 490 495  
 Val Gln Leu Gly Ser His Thr Ile Glu Ala Gly Gln Val Tyr Gly Lys  
 500 505 510  
 Val Ser Ser Pro Leu Leu Lys Leu Thr Lys Gly Thr His Lys Leu Thr  
 515 520 525  
 Ile Ser Gly Phe Ala Met Ser Ala Thr Pro Leu Ser Leu Glu Leu Gly  
 530 535 540  
 Trp Val Thr Pro Ala Ala Ala Asp Ala Thr Ile Ala Lys Ala Val Glu  
 545 550 555 560  
 Ser Ala Arg Lys Ala Arg Thr Ala Val Val Phe Ala Tyr Asp Asp Gly  
 565 570 575  
 Thr Glu Gly Val Asp Arg Pro Asn Leu Ser Leu Pro Gly Thr Gln Asp  
 580 585 590  
 Lys Leu Ile Ser Ala Val Ala Asp Ala Asn Pro Asn Thr Ile Val Val  
 595 600 605  
 Leu Asn Thr Gly Ser Ser Val Leu Met Pro Trp Leu Ser Lys Thr Arg  
 610 615 620  
 Ala Val Leu Asp Met Trp Tyr Pro Gly Gln Ala Gly Ala Glu Ala Thr  
 625 630 635 640  
 Ala Ala Leu Leu Tyr Gly Asp Val Asn Pro Ser Gly Lys Leu Thr Gln  
 645 650 655  
 Ser Phe Pro Ala Ala Glu Asn Gln His Ala Val Ala Gly Asp Pro Thr  
 660 665 670  
 Ser Tyr Pro Gly Val Asp Asn Gln Gln Thr Tyr Arg Glu Gly Ile His  
 675 680 685  
 Val Gly Tyr Arg Trp Phe Asp Lys Glu Asn Val Lys Pro Leu Phe Pro  
 690 695 700  
 Phe Gly His Gly Leu Ser Tyr Thr Ser Phe Thr Gln Ser Ala Pro Thr  
 705 710 715 720  
 Val Val Arg Thr Ser Thr Gly Gly Leu Lys Val Thr Val Thr Val Arg  
 725 730 735  
 Asn Ser Gly Lys Arg Ala Gly Gln Glu Val Val Gln Ala Tyr Leu Gly  
 740 745 750  
 Ala Ser Pro Asn Val Thr Ala Pro Gln Ala Lys Lys Lys Leu Val Gly  
 755 760 765  
 Tyr Thr Lys Val Ser Leu Ala Ala Gly Glu Ala Lys Thr Val Thr Val  
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 Asn Val Asp Arg Arg Gln Leu Gln Thr Gly Ser Ser Ser Ala Asp Leu  
 785 790 795 800  
 Arg Gly Ser Ala Thr Val Asn Val Trp  
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<210> 25  
 <211> 9  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> A synthetic consensus sequence.

<220>  
 <221> VARIANT  
 <222> (4)...(4)  
 <223> Residue 4 is either V or I.

<400> 25  
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<210> 26  
 <211> 1011  
 <212> DNA  
 <213> Streptomyces venezuelae

<400> 26  
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 gacggtagga acgttctcg aatcgcccc ggaaaggcgc cgataaccga ggagttggtg 180  
 cgctccttcg acaccgtgac ggtcgtggag atggaccgcg actggccgc gcatgtgcgg 240  
 cgaaaaattcg aaggggagag ggtcaccgta ttccagggtg atttcctcg cttccgcatt 300  
 ccgcgcgata tcgacaccgt cgtcggaaac gttcccttcg gcatcacgac ccagattctc 360  
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 gcccgc当地 ggcgcggctcg cagcggcggc tcgctctca cgacccctcg ggccccctgg 480  
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 gacggccggcg tcctgacgat caggcgcacgc ccccaaaaaa tgctgccccg gagcgcgagc 600  
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<210> 27  
 <211> 336  
 <212> PRT  
 <213> Streptomyces venezuelae

<400> 27  
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 Asn Leu Val Thr His Val Glu Gly Asp Gly Arg Asn Val Leu Glu Ile  
 35 40 45  
 Gly Pro Gly Lys Gly Ala Ile Thr Glu Glu Leu Val Arg Ser Phe Asp  
 50 55 60  
 Thr Val Thr Val Val Glu Met Asp Pro His Trp Ala Ala His Val Arg  
 65 70 75 80  
 Arg Lys Phe Glu Gly Glu Arg Val Thr Val Phe Gln Gly Asp Phe Leu  
 85 90 95  
 Asp Phe Arg Ile Pro Arg Asp Ile Asp Thr Val Val Gly Asn Val Pro  
 100 105 110  
 Phe Gly Ile Thr Thr Gln Ile Leu Arg Ser Leu Leu Glu Ser Thr Asn  
 115 120 125  
 Trp Gln Ser Ala Ala Leu Ile Val Gln Trp Glu Val Ala Arg Lys Arg  
 130 135 140  
 Ala Gly Arg Ser Gly Gly Ser Leu Leu Thr Thr Ser Trp Ala Pro Trp  
 145 150 155 160  
 Tyr Glu Phe Ala Val His Asp Arg Val Arg Ala Ser Ser Phe Arg Pro  
 165 170 175

Met	Pro	Arg	Val	Asp	Gly	Gly	Val	Leu	Thr	Ile	Arg	Arg	Arg	Pro	Gln
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Pro	Leu	Leu	Pro	Glu	Ser	Ala	Ser	Arg	Ala	Phe	Gln	Asn	Phe	Ala	Glu
195					200					205					
Ala	Val	Phe	Thr	Gly	Pro	Gly	Arg	Gly	Leu	Ala	Glu	Ile	Leu	Arg	Arg
210					215					220					
His	Ile	Pro	Lys	Arg	Thr	Tyr	Arg	Ser	Leu	Ala	Asp	Arg	His	Gly	Ile
225					230					235			240		
Pro	Asp	Gly	Gly	Leu	Pro	Lys	Asp	Leu	Thr	Leu	Thr	Gln	Trp	Ile	Ala
							245		250			255			
Leu	Phe	Gln	Ala	Ser	Gln	Pro	Ser	Tyr	Ala	Pro	Gly	Ala	Pro	Gly	Thr
							260		265			270			
Arg	Met	Pro	Gly	Gln	Gly	Gly	Gly	Ala	Gly	Gly	Arg	Asp	Tyr	Asp	Ser
							275		280			285			
Glu	Thr	Ser	Arg	Ala	Ala	Val	Pro	Gly	Ser	Arg	Arg	Tyr	Gly	Pro	Thr
							290		295			300			
Arg	Gly	Gly	Glu	Pro	Cys	Ala	Pro	Arg	Ala	Gln	Val	Arg	Gln	Thr	Lys
							305		310			315		320	
Gly	Arg	Gln	Gly	Ala	Arg	Gly	Ser	Ser	Tyr	Gly	Arg	Arg	Thr	Gly	Arg
							325			330			335		

<210> 28

<211> 969

<212> DNA

<213> Streptomyces venezuelae

<400> 28

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gacgggtacgg	cgggcgggtgg	cgcggccgg	tcgcacgggg	ccggctcggt	cggggccgg	840
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<210> 29

<211> 322

<212> PRT

<213> Streptomyces venezuelae

<400> 29

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Leu	Val	Asp	Arg	Ser	Val	Ile	Asp	Glu	Ile	Asp	Gly	Leu	Val	Ala	Arg
						20		25		30					
Thr	Lys	Gly	Pro	Ile	Leu	Glu	Ile	Gly	Pro	Gly	Asp	Gly	Ala	Leu	Thr
						35		40		45					
Leu	Pro	Leu	Ser	Arg	His	Gly	Arg	Pro	Ile	Thr	Ala	Val	Glu	Leu	Asp
						50		55		60					
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<210> 30  
<211> 13842  
<212> DNA  
<213> *Streptomyces venezuelae*

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 1955 1960 1965  
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 Asp Trp Arg Tyr Arg Ile Asp Trp Lys Arg Leu Pro Ala Ala Glu Gly  
 2005 2010 2015  
 Ser Glu Arg Thr Gly Leu Ser Gly Arg Trp Leu Ala Val Thr Pro Glu  
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 Gly Arg Arg Pro Thr Arg Asp Trp Gln Pro His Gly Thr Val Leu Ile  
 1105 1110 1115 1120  
 Thr Gly Gly Thr Gly Ala Leu Gly Ser His Ala Ala Arg Trp Met Ala  
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 His His Gly Ala Glu His Leu Leu Leu Val Ser Arg Ser Gly Glu Gln  
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 Ala Pro Gly Ala Thr Gln Leu Thr Ala Glu Leu Thr Ala Ser Gly Ala  
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 Arg Val Thr Ile Ala Ala Cys Asp Val Ala Asp Pro His Ala Met Arg  
 1170 1175 1180  
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 His Asp Glu Thr Phe Val Ala Val Ala Asp Val Asp Trp Glu Arg Phe  
 1330 1335 1340  
 Ala Pro Ala Phe Thr Val Ser Arg Pro Ser Leu Leu Asp Gly Val  
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 Pro Glu Ala Arg Gln Ala Leu Ala Ala Pro Val Gly Ala Pro Ala Pro  
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 Gly Asp Ala Ala Val Ala Pro Thr Gly Gln Ser Ser Ala Leu Ala Ala  
 1380 1385 1390

Ile Thr Ala Leu Pro Glu Pro Glu Arg Arg Pro Ala Leu Leu Thr Leu  
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 Val Arg Thr His Ala Ala Ala Val Leu Gly His Ser Ser Pro Asp Arg  
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 Val Ala Pro Gly Arg Ala Phe Thr Glu Leu Gly Phe Asp Ser Leu Thr  
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 Ala Val Gln Leu Arg Asn Gln Leu Ser Thr Val Val Gly Asn Arg Leu  
 1445 1450 1455  
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 1460 1465 1470  
 His Leu His Glu Ala Tyr Leu Ala Pro Ala Glu Pro Ala Pro Thr Asp  
 1475 1480 1485  
 Trp Glu Gly Arg Val Arg Arg Ala Leu Ala Glu Leu Pro Leu Asp Arg  
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 <212> DNA  
 <213> Streptomyces venezuelae

<400> 36

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ggctgcaccg	gcaccgcgg	g	gg	gg	gg	3420
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atcc	ccgcccgg	ccccc	cc	gg	gg	3600
ctcg	ccgcccgg	ccgc	cc	gg	gg	3660
gtc	ccgcgtcg	acc	cc	gg	gg	3720
ctgg	ccgcgtcg	ggc	cc	gg	gg	3780
atgg	ccgcgtcg	cc	cc	gg	gg	3840
c	ccgcgtcg	cc	cc	gg	gg	3900
gccc	ccgcgtcg	cc	cc	gg	gg	3960
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<211> 1346

<212> PRT

<213> Streptomyces venezuelae

<400> 37

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					20			25					30			
Arg	Gln	Glu	Pro	Met	Ala	Ile	Val	Gly	Met	Ser	Cys	Arg	Phe	Ala	Gly	
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Gly	Ile	Arg	Ser	Pro	Glu	Asp	Leu	Trp	Asp	Ala	Val	Ala	Ala	Gly	Lys	
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Asp	Leu	Val	Ser	Glu	Val	Pro	Glu	Glu	Arg	Gly	Trp	Asp	Ile	Asp	Ser	
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Leu	Tyr	Asp	Pro	Val	Pro	Gly	Arg	Lys	Gly	Thr	Thr	Tyr	Val	Arg	Asn	
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Ala	Ala	Phe	Leu	Asp	Asp	Ala	Ala	Gly	Phe	Asp	Ala	Ala	Phe	Phe	Gly	
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Ile	Ser	Pro	Arg	Glu	Ala	Leu	Ala	Met	Asp	Pro	Gln	Gln	Arg	Gln	Leu	
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Leu	Glu	Ala	Ser	Trp	Glu	Val	Phe	Glu	Arg	Ala	Gly	Ile	Asp	Pro	Ala	
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Ser	Val	Arg	Gly	Thr	Asp	Val	Gly	Val	Tyr	Val	Gly	Cys	Gly	Tyr	Gln	
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Asp Tyr Ala Pro Asp Ile Arg Val Ala Pro Glu Gly Thr Gly Gly Tyr  
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 Val Val Thr Gly Asn Ser Ser Ala Val Ala Ser Gly Arg Ile Ala Tyr  
 180 185 190  
 Ser Leu Gly Leu Glu Gly Pro Ala Val Thr Val Asp Thr Ala Cys Ser  
 195 200 205  
 Ser Ser Leu Val Ala Leu His Leu Ala Leu Lys Gly Leu Arg Asn Gly  
 210 215 220  
 Asp Cys Ser Thr Ala Leu Val Gly Gly Val Ala Val Leu Ala Thr Pro  
 225 230 235 240  
 Gly Ala Phe Ile Glu Phe Ser Ser Gln Gln Ala Met Ala Ala Asp Gly  
 245 250 255  
 Arg Thr Lys Gly Phe Ala Ser Ala Ala Asp Gly Leu Ala Trp Gly Glu  
 260 265 270  
 Gly Val Ala Val Leu Leu Leu Glu Arg Leu Ser Asp Ala Arg Arg Lys  
 275 280 285  
 Gly His Arg Val Leu Ala Val Val Arg Gly Ser Ala Ile Asn Gln Asp  
 290 295 300  
 Gly Ala Ser Asn Gly Leu Thr Ala Pro His Gly Pro Ser Gln Gln His  
 305 310 315 320  
 Leu Ile Arg Gln Ala Leu Ala Asp Ala Arg Leu Thr Ser Ser Asp Val  
 325 330 335  
 Asp Val Val Glu Gly His Gly Thr Gly Thr Arg Leu Gly Asp Pro Ile  
 340 345 350  
 Glu Ala Gln Ala Leu Leu Ala Thr Tyr Gly Gln Gly Arg Ala Pro Gly  
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 Gln Pro Leu Arg Leu Gly Thr Leu Lys Ser Asn Ile Gly His Thr Gln  
 370 375 380  
 Ala Ala Ser Gly Val Ala Gly Val Ile Lys Met Val Gln Ala Leu Arg  
 385 390 395 400  
 His Gly Val Leu Pro Lys Thr Leu His Val Asp Glu Pro Thr Asp Gln  
 405 410 415  
 Val Asp Trp Ser Ala Gly Ser Val Glu Leu Leu Thr Glu Ala Val Asp  
 420 425 430  
 Trp Pro Glu Arg Pro Gly Arg Leu Arg Arg Ala Gly Val Ser Ala Phe  
 435 440 445  
 Gly Val Gly Gly Thr Asn Ala His Val Val Leu Glu Glu Ala Pro Ala  
 450 455 460  
 Val Glu Glu Ser Pro Ala Val Glu Pro Pro Ala Gly Gly Val Val  
 465 470 475 480  
 Pro Trp Pro Val Ser Ala Lys Thr Ser Ala Ala Leu Asp Ala Gln Ile  
 485 490 495  
 Gly Gln Leu Ala Ala Tyr Ala Glu Asp Arg Thr Asp Val Asp Pro Ala  
 500 505 510  
 Val Ala Ala Arg Ala Leu Val Asp Ser Arg Thr Ala Met Glu His Arg  
 515 520 525  
 Ala Val Ala Val Gly Asp Ser Arg Glu Ala Leu Arg Asp Ala Leu Arg  
 530 535 540  
 Met Pro Glu Gly Leu Val Arg Gly Thr Val Thr Asp Pro Gly Arg Val  
 545 550 555 560  
 Ala Phe Val Phe Pro Gly Gln Gly Thr Gln Trp Ala Gly Met Gly Ala  
 565 570 575  
 Glu Leu Leu Asp Ser Ser Pro Glu Phe Ala Ala Ala Met Ala Glu Cys  
 580 585 590  
 Glu Thr Ala Leu Ser Pro Tyr Val Asp Trp Ser Leu Glu Ala Val Val  
 595 600 605  
 Arg Gln Ala Pro Ser Ala Pro Thr Leu Asp Arg Val Asp Val Val Gln  
 610 615 620  
 Pro Val Thr Phe Ala Val Met Val Ser Leu Ala Lys Val Trp Gln His  
 625 630 635 640  
 His Gly Ile Thr Pro Glu Ala Val Ile Gly His Ser Gln Gly Glu Ile  
 645 650 655

Ala Ala Ala Tyr Val Ala Gly Ala Leu Thr Leu Asp Asp Ala Ala Arg  
                   660                  665                  670  
 Val Val Thr Leu Arg Ser Lys Ser Ile Ala Ala His Leu Ala Gly Lys  
                   675                  680                  685  
 Gly Gly Met Ile Ser Leu Ala Leu Ser Glu Glu Ala Thr Arg Gln Arg  
                   690                  695                  700  
 Ile Glu Asn Leu His Gly Leu Ser Ile Ala Ala Val Asn Gly Pro Thr  
                   705                  710                  715                  720  
 Ala Thr Val Val Ser Gly Asp Pro Thr Gln Ile Gln Glu Leu Ala Gln  
                   725                  730                  735  
 Ala Cys Glu Ala Asp Gly Ile Arg Ala Arg Ile Ile Pro Val Asp Tyr  
                   740                  745                  750  
 Ala Ser His Ser Ala His Val Glu Thr Ile Glu Asn Glu Leu Ala Asp  
                   755                  760                  765  
 Val Leu Ala Gly Leu Ser Pro Gln Thr Pro Gln Val Pro Phe Phe Ser  
                   770                  775                  780  
 Thr Leu Glu Gly Thr Trp Ile Thr Glu Pro Ala Leu Asp Gly Gly Tyr  
                   785                  790                  795                  800  
 Trp Tyr Arg Asn Leu Arg His Arg Val Gly Phe Ala Pro Ala Val Glu  
                   805                  810                  815  
 Thr Leu Ala Thr Asp Glu Gly Phe Thr His Phe Ile Glu Val Ser Ala  
                   820                  825                  830  
 His Pro Val Leu Thr Met Thr Leu Pro Asp Lys Val Thr Gly Leu Ala  
                   835                  840                  845  
 Thr Leu Arg Arg Glu Asp Gly Gly Gln His Arg Leu Thr Thr Ser Leu  
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 Ala Glu Ala Trp Ala Asn Gly Leu Ala Leu Asp Trp Ala Ser Leu Leu  
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 Pro Ala Thr Gly Ala Leu Ser Pro Ala Val Pro Asp Leu Pro Thr Tyr  
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 Ala Phe Gln His Arg Ser Tyr Trp Ile Ser Pro Ala Gly Pro Gly Glu  
                   900                  905                  910  
 Ala Pro Ala His Thr Ala Ser Gly Arg Glu Ala Val Ala Glu Thr Gly  
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 Leu Ala Trp Gly Pro Gly Ala Glu Asp Leu Asp Glu Glu Gly Arg Arg  
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 Ser Ala Val Leu Ala Met Val Met Arg Gln Ala Ala Ser Val Leu Arg  
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 Cys Asp Ser Pro Glu Glu Val Pro Val Asp Arg Pro Leu Arg Glu Ile  
                   965                  970                  975  
 Gly Phe Asp Ser Leu Thr Ala Val Asp Phe Arg Asn Arg Val Asn Arg  
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 Leu Thr Gly Leu Gln Leu Pro Pro Thr Val Val Phe Gln His Pro Thr  
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 Pro Val Ala Leu Ala Glu Arg Ile Ser Asp Glu Leu Ala Glu Arg Asn  
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 Trp Ala Val Ala Glu Pro Ser Asp His Glu Gln Ala Glu Glu Glu Lys  
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 Gln Phe Ala Ser Pro Glu Ala Cys Ser Glu Arg Leu Asp Pro Val Leu  
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 Leu Ala Gly Gly Pro Thr Asp Arg Ala Glu Gly Arg Ala Val Leu Val  
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 Gly Cys Thr Gly Thr Ala Ala Asn Gly Gly Pro His Glu Phe Leu Arg  
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 Leu Ser Thr Ser Phe Gln Glu Glu Arg Asp Phe Leu Ala Val Pro Leu  
                   1140                  1145                  1150

Pro Gly Tyr Gly Thr Gly Thr Gly Thr Ala Leu Leu Pro Ala  
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 Asp Leu Asp Thr Ala Leu Asp Ala Gln Ala Arg Ala Ile Leu Arg Ala  
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 Ala Gly Asp Ala Pro Val Val Leu Leu Gly His Ser Gly Gly Ala Leu  
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 Leu Ala His Glu Leu Ala Phe Arg Leu Glu Arg Ala His Gly Ala Pro  
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 Pro Ala Gly Ile Val Leu Val Asp Pro Tyr Pro Pro Gly His Gln Glu  
 1220 1225 1230  
 Pro Ile Glu Val Trp Ser Arg Gln Leu Gly Glu Gly Leu Phe Ala Gly  
 1235 1240 1245  
 Glu Leu Glu Pro Met Ser Asp Ala Arg Leu Leu Ala Met Gly Arg Tyr  
 1250 1255 1260  
 Ala Arg Phe Leu Ala Gly Pro Arg Pro Gly Arg Ser Ser Ala Pro Val  
 1265 1270 1275 1280  
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 1285 1290 1295  
 Gly Asp Trp Arg Ala His Trp Asp Leu Pro His Thr Val Ala Asp Val  
 1300 1305 1310  
 Pro Gly Asp His Phe Thr Met Met Arg Asp His Ala Pro Ala Val Ala  
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 Gly Lys  
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 <211> 1251  
 <212> DNA  
 <213> Streptomyces venezuelae

<400> 38

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<400> 39

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35 40 45  
Gly Asp Glu Val Trp Leu Val Val Gly Tyr Asp Arg Ala Arg Ala Val  
50 55 60  
Leu Ala Asp Pro Arg Phe Ser Lys Asp Trp Arg Asn Ser Thr Thr Pro  
65 70 75 80  
Leu Thr Glu Ala Glu Ala Ala Leu Asn His Asn Met Leu Glu Ser Asp  
85 90 95  
Pro Pro Arg His Thr Arg Leu Arg Lys Leu Val Ala Arg Glu Phe Thr  
100 105 110  
Met Arg Arg Val Glu Leu Leu Arg Pro Arg Val Gln Glu Ile Val Asp  
115 120 125  
Gly Leu Val Asp Ala Met Leu Ala Ala Pro Asp Gly Arg Ala Asp Leu  
130 135 140  
Met Glu Ser Leu Ala Trp Pro Leu Pro Ile Thr Val Ile Ser Glu Leu  
145 150 155 160  
Leu Gly Val Pro Glu Pro Asp Arg Ala Ala Phe Arg Val Trp Thr Asp  
165 170 175  
Ala Phe Val Phe Pro Asp Asp Pro Ala Gln Ala Gln Thr Ala Met Ala  
180 185 190  
Glu Met Ser Gly Tyr Leu Ser Arg Leu Ile Asp Ser Lys Arg Gly Gln  
195 200 205  
Asp Gly Glu Asp Leu Leu Ser Ala Leu Val Arg Thr Ser Asp Glu Asp  
210 215 220  
Gly Ser Arg Leu Thr Ser Glu Glu Leu Leu Gly Met Ala His Ile Leu  
225 230 235 240  
Leu Val Ala Gly His Glu Thr Thr Val Asn Leu Ile Ala Asn Gly Met  
245 250 255  
Tyr Ala Leu Leu Ser His Pro Asp Gln Leu Ala Ala Leu Arg Ala Asp  
260 265 270  
Met Thr Leu Leu Asp Gly Ala Val Glu Glu Met Leu Arg Tyr Glu Gly  
275 280 285  
Pro Val Glu Ser Ala Thr Tyr Arg Phe Pro Val Glu Pro Val Asp Leu  
290 295 300  
Asp Gly Thr Val Ile Pro Ala Gly Asp Thr Val Leu Val Val Leu Ala  
305 310 315 320  
Asp Ala His Arg Thr Pro Glu Arg Phe Pro Asp Pro His Arg Phe Asp  
325 330 335  
Ile Arg Arg Asp Thr Ala Gly His Leu Ala Phe Gly His Gly Ile His  
340 345 350  
Phe Cys Ile Gly Ala Pro Leu Ala Arg Leu Glu Ala Arg Ile Ala Val  
355 360 365  
Arg Ala Leu Leu Glu Arg Cys Pro Asp Leu Ala Leu Asp Val Ser Pro  
370 375 380  
Gly Glu Leu Val Trp Tyr Pro Asn Pro Met Ile Arg Gly Leu Lys Ala  
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Leu Pro Ile Arg Trp Arg Arg Gly Arg Glu Ala Gly Arg Arg Thr Gly  
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<210> 40

<211> 2787

<212> DNA

<213> Streptomyces venezuelae

<400> 40

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60

120

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gaacaacacg	gtgcccacac	ctccgcccgtc	cgcgacactgc	tggacgcccgc	ctcgccgccc	300
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cacgactggc	tgctctccgt	ctccgcccgc	accccggtcc	tcgctccgt	cgacgacactg	420
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<210> 41

<211> 928

<212> PRT

<213> Streptomyces venezuelae

<400> 41

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Leu	Asp	Ala	Ser	Ala	Ala	Gly	Asp	Gly	Thr	Leu	Leu	Leu	Val	Ser	Gly
					20				25				30		
Pro	Ala	Gly	Ser	Gly	Lys	Thr	Glu	Leu	Leu	Arg	Ser	Leu	Arg	Arg	Leu
					35			40			45				
Ala	Ala	Glu	Arg	Glu	Thr	Pro	Val	Trp	Ser	Val	Arg	Ala	Leu	Pro	Gly
					50			55			60				
Asp	Arg	Asp	Ile	Pro	Leu	Gly	Val	Leu	Cys	Gln	Leu	Leu	Arg	Ser	Ala
					65			70			75			80	

Glu Gln His Gly Ala Asp Thr Ser Ala Val Arg Asp Leu Leu Asp Ala  
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 Ala Ser Arg Arg Ala Gly Asn Leu Thr Ser Pro Ala Asp Ala Pro Leu  
 100 105 110  
 Arg Val Asp Glu Thr His Arg Leu His Asp Trp Leu Leu Ser Val Ser  
 115 120 125  
 Arg Arg Thr Pro Phe Leu Val Ala Val Asp Asp Leu Thr His Ala Asp  
 130 135 140  
 Thr Ala Ser Leu Arg Phe Leu Leu Tyr Cys Ala Ala His His Asp Gln  
 145 150 155 160  
 Gly Gly Ile Gly Phe Val Met Thr Glu Arg Ala Ser Gln Arg Ala Gly  
 165 170 175  
 Tyr Arg Val Phe Arg Ala Glu Leu Leu Arg Gln Pro His Cys Arg Asn  
 180 185 190  
 Met Trp Leu Ser Gly Leu Pro Pro Ser Gly Val Arg Gln Leu Leu Ala  
 195 200 205  
 His Tyr Tyr Gly Pro Glu Ala Ala Glu Arg Arg Ala Pro Ala Tyr His  
 210 215 220  
 Ala Thr Thr Gly Gly Asn Pro Leu Leu Leu Arg Ala Leu Thr Gln Asp  
 225 230 235 240  
 Arg Gln Ala Ser His Thr Thr Leu Gly Ala Ala Gly Gly Asp Glu Pro  
 245 250 255  
 Val His Gly Asp Ala Phe Ala Gln Ala Val Leu Asp Cys Leu His Arg  
 260 265 270  
 Ser Ala Glu Gly Thr Leu Glu Thr Ala Arg Trp Leu Ala Val Leu Glu  
 275 280 285  
 Gln Ser Asp Pro Leu Leu Val Glu Arg Leu Thr Gly Thr Thr Ala Ala  
 290 295 300  
 Ala Val Glu Arg His Ile Gln Glu Leu Ala Ala Ile Gly Leu Leu Asp  
 305 310 315 320  
 Glu Asp Gly Thr Leu Gly Gln Pro Ala Ile Arg Glu Ala Ala Leu Gln  
 325 330 335  
 Asp Leu Pro Ala Gly Glu Arg Thr Glu Leu His Arg Arg Ala Ala Glu  
 340 345 350  
 Gln Leu His Arg Asp Gly Ala Asp Glu Asp Thr Val Ala Arg His Leu  
 355 360 365  
 Leu Val Gly Gly Ala Pro Asp Ala Pro Trp Ala Leu Pro Leu Leu Glu  
 370 375 380  
 Arg Gly Ala Gln Gln Ala Leu Phe Asp Asp Arg Leu Asp Asp Ala Phe  
 385 390 395 400  
 Arg Ile Leu Glu Phe Ala Val Arg Ser Ser Thr Asp Asn Thr Gln Leu  
 405 410 415  
 Ala Arg Leu Ala Pro His Leu Val Ala Ala Ser Trp Arg Met Asn Pro  
 420 425 430  
 His Met Thr Thr Arg Ala Leu Ala Leu Phe Asp Arg Leu Leu Ser Gly  
 435 440 445  
 Glu Leu Pro Pro Ser His Pro Val Met Ala Leu Ile Arg Cys Leu Val  
 450 455 460  
 Trp Tyr Gly Arg Leu Pro Glu Ala Ala Asp Ala Leu Ser Arg Leu Arg  
 465 470 475 480  
 Pro Ser Ser Asp Asn Asp Ala Leu Glu Leu Ser Leu Thr Arg Met Trp  
 485 490 495  
 Leu Ala Ala Leu Cys Pro Pro Leu Leu Glu Ser Leu Pro Ala Thr Pro  
 500 505 510  
 Glu Pro Glu Arg Gly Pro Val Pro Val Arg Leu Ala Pro Arg Thr Thr  
 515 520 525  
 Ala Leu Gln Ala Gln Ala Gly Val Phe Gln Arg Gly Pro Asp Asn Ala  
 530 535 540  
 Ser Val Ala Gln Ala Glu Gln Ile Leu Gln Gly Cys Arg Leu Ser Glu  
 545 550 555 560  
 Glu Thr Tyr Glu Ala Leu Glu Thr Ala Leu Leu Val Leu Val His Ala  
 565 570 575

Asp Arg Leu Asp Arg Ala Leu Phe Trp Ser Asp Ala Leu Leu Ala Glu  
 580 585 590  
 Ala Val Glu Arg Arg Ser Leu Gly Trp Glu Ala Val Phe Ala Ala Thr  
 595 600 605  
 Arg Ala Met Ile Ala Ile Arg Cys Gly Asp Leu Pro Thr Ala Arg Glu  
 610 615 620  
 Arg Ala Glu Leu Ala Leu Ser His Ala Ala Pro Glu Ser Trp Gly Leu  
 625 630 635 640  
 Ala Val Gly Met Pro Leu Ser Ala Leu Leu Ala Cys Thr Glu Ala  
 645 650 655  
 Gly Glu Tyr Glu Gln Ala Glu Arg Val Leu Arg Gln Pro Val Pro Asp  
 660 665 670  
 Ala Met Phe Asp Ser Arg His Gly Met Glu Tyr Met His Ala Arg Gly  
 675 680 685  
 Arg Tyr Trp Leu Ala Thr Gly Arg Leu His Ala Ala Leu Gly Glu Phe  
 690 695 700  
 Met Leu Cys Gly Glu Ile Leu Gly Ser Trp Asn Leu Asp Gln Pro Ser  
 705 710 715 720  
 Ile Val Pro Trp Arg Thr Ser Ala Ala Glu Val Tyr Leu Arg Leu Gly  
 725 730 735  
 Asn Arg Gln Lys Ala Arg Ala Leu Ala Glu Ala Gln Leu Ala Leu Val  
 740 745 750  
 Arg Pro Gly Arg Ser Arg Thr Arg Gly Leu Thr Leu Arg Val Leu Ala  
 755 760 765  
 Ala Ala Val Asp Gly Gln Gln Ala Glu Arg Leu His Ala Glu Ala Val  
 770 775 780  
 Asp Met Leu His Asp Ser Gly Asp Arg Leu Glu His Ala Arg Ala Leu  
 785 790 795 800  
 Ala Gly Met Ser Arg His Gln Gln Ala Gln Gly Asp Asn Tyr Arg Ala  
 805 810 815  
 Arg Met Thr Ala Arg Leu Ala Gly Asp Met Ala Trp Ala Cys Gly Ala  
 820 825 830  
 Tyr Pro Leu Ala Glu Glu Ile Val Pro Gly Arg Gly Gly Arg Arg Ala  
 835 840 845  
 Lys Ala Val Ser Thr Glu Leu Glu Leu Pro Gly Gly Pro Asp Val Gly  
 850 855 860  
 Leu Leu Ser Glu Ala Glu Arg Arg Val Ala Ala Leu Ala Ala Arg Gly  
 865 870 875 880  
 Leu Thr Asn Arg Gln Ile Ala Arg Arg Leu Cys Val Thr Ala Ser Thr  
 885 890 895  
 Val Glu Gln His Leu Thr Arg Val Tyr Arg Lys Leu Asn Val Thr Arg  
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 <213> *Streptomyces venezuelae*

<400> 42  
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27

<210> 43  
 <211> 35  
 <212> DNA  
 <213> *Streptomyces venezuelae*

<400> 43  
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35

<210> 44		
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<212> DNA		
<213> Streptomyces venezuelae		
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<210> 50		
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<212> DNA		
<213> Streptomyces venezuelae		
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<211> 32		
<212> DNA		
<213> Streptomyces venezuelae		

<400> 51  
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32

<210> 52  
<211> 846  
<212> DNA  
<213> Streptomyces venezuelae

<400> 52  
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ttccgcttct cggaggagct gcacccctcc gtcgaggccc tgcgggtgca gtatccgggc 180  
cgccaggacc ggcgtgccga gccgtgtctg gagagcgtcg aggagctcgcc cgagcatgtg 240  
gtcgccggca ccgaacccctg gtggcaggag ggccggctgg cttcttcgg gcacagcctc 300  
ggcgcctccg tcgccttcga gacggcccgac atccttggaa acgggcacgg ggtacggccc 360  
gagggcctgt acgtctccgg tcggcgcgccc ccgtcgctgg cggcggacgg gctcgccac 420  
cagctggacg accgggcgtt cttggccgag atccggccgc tcagcggcac cgacgagcgg 480  
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gcccgggaga cgtacctcga cccggccgtcc gccaagctca cttggccggat gatggccctg 600  
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agcgggcccgt tctgcctccg ggcgtactcc ggcggccact tctacctcaa cgaccagtgg 720  
cacgagatct gcaacgacat cttccgaccac ctgctcgta cccgcggccgc gcccgtatgcc 780  
cgctcgatgc agcccccgac cagccttatac gaaggagcgg cgaagagatg gcagaaccca 840  
cggtga 846

<210> 53  
<211> 281  
<212> PRT  
<213> Streptomyces venezuelae

<400> 53  
Met Thr Asp Arg Pro Leu Asn Val Asp Ser Gly Leu Trp Ile Arg Arg  
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Phe His Pro Ala Pro Asn Ser Ala Val Arg Leu Val Cys Leu Pro His  
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Ala Gly Gly Ser Ala Ser Tyr Phe Phe Arg Phe Ser Glu Glu Leu His  
35 40 45  
Pro Ser Val Glu Ala Leu Ser Val Gln Tyr Pro Gly Arg Gln Asp Arg  
50 55 60  
Arg Ala Glu Pro Cys Leu Glu Ser Val Glu Leu Ala Glu His Val  
65 70 75 80  
Val Ala Ala Thr Glu Pro Trp Trp Gln Glu Gly Arg Leu Ala Phe Phe  
85 90 95  
Gly His Ser Leu Gly Ala Ser Val Ala Phe Glu Thr Ala Arg Ile Leu  
100 105 110  
Glu Gln Arg His Gly Val Arg Pro Glu Gly Leu Tyr Val Ser Gly Arg  
115 120 125  
Arg Ala Pro Ser Leu Ala Pro Asp Arg Leu Val His Gln Leu Asp Asp  
130 135 140  
Arg Ala Phe Leu Ala Glu Ile Arg Arg Leu Ser Gly Thr Asp Glu Arg  
145 150 155 160  
Phe Leu Gln Asp Asp Glu Leu Leu Arg Leu Val Leu Pro Ala Leu Arg  
165 170 175  
Ser Asp Tyr Lys Ala Ala Glu Thr Tyr Leu His Arg Pro Ser Ala Lys  
180 185 190  
Leu Thr Cys Pro Val Met Ala Leu Ala Gly Asp Arg Asp Pro Lys Ala  
195 200 205  
Pro Leu Asn Glu Val Ala Glu Trp Arg Arg His Thr Ser Gly Pro Phe  
210 215 220  
Cys Leu Arg Ala Tyr Ser Gly Gly His Phe Tyr Leu Asn Asp Gln Trp  
225 230 235 240

His	Glu	Ile	Cys	Asn	Asp	Ile	Ser	Asp	His	Leu	Leu	Val	Thr	Arg	Gly
						245				250				255	
Ala	Pro	Asp	Ala	Arg	Val	Val	Gln	Pro	Pro	Thr	Ser	Leu	Ile	Glu	Gly
						260			265				270		
Ala	Ala	Lys	Arg	Trp	Gln	Asn	Pro	Arg							
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<210> 54  
 <211> 404  
 <212> DNA  
 <213> *Streptomyces venezuelae*

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gtgcggagcc	ggagccggag	acgtcgatcg	acgacacctga	cgcccgaggcc	ctgatccgga										180
tggctctcg	cccgcggaac	acctgacccc	accgcggccca	cgcccccgcac	accggccaggt										240
gccgtcaggc	accacccgc	ccctcgcccc	ccacacgccc	acaaccccat	ccacagagcgg										300
aagaccacac	ccagatgacg	agttccaacg	agcagtttgt	ggacgctctg	cgccgcctccc										360
tcaaggagaa	cgaagaactc	cgaaagaga	gccgtcgccg	ggac											404

<210> 55  
 <211> 437  
 <212> DNA  
 <213> *Streptomyces narbonensis*

<400> 55															
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cccgccatcc	ggaaccggag	acgtcgatcg	acgacacctga	cgcccgaggcc	ctgatccgga										180
tggctctcg	cccgcggaac	gcctgagcac	ccgcggccggc	ccgtggctgc	cccgccccctt										240
gcccgaactgc	gggcccggcc	ccggggcccg	acaccggccac	gtaccacccc	gcaccacccgc										300
cccccacacg	cccacaacgc	catccacgag	cggaagacca	cacccagatg	acgagttcca										360
acgagcagtt	ggtggacgct	ctgcgcgcct	ccctaagga	gaacgaagaa	ctccggaaag										420
agagccgtcg	ccgggac														437

<210> 56  
 <211> 327  
 <212> DNA  
 <213> *Streptomyces venezuelae*

<400> 56															
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gaccgacacg	gttctgaacg	tgacggcaa	cctgtggatc	cgcgcttcc	atccctcgcc										120
gaacagcgcg	gtgcgactgg	tctgcctgccc	ccatggccggc	ggctccgcca	gctacttctt										180
ccgcttctcg	gaggagctcc	accctcggt	cgaggccctg	tcggtgca	acccggcccg										240
ccaggaccgg	cgtgcccggc	cgtgcctgga	gagcgtcgag	gagctggccg	agcacgtgg										300
cgccggccacc	gaaccctgg	ggcagga													327

<210> 57  
 <211> 327  
 <212> DNA  
 <213> *Streptomyces narbonensis*

<400> 57															
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gaccgacaga	gttctgaacg	tgacagcgac	cctgtggatc	cgacgcttcc	acccctcgcc										120
gaacagcgcg	gtgcggttgg	tctgtctgccc	gcacggccgt	ggttccgcca	gctacttctt										180
ccgcttctcg	gaggagctcc	accctcggt	cgaggccctg	tcggtgca	acccggcccg										240
ccaggaccgg	cgtgcccggc	cgtgcctgga	gagcgtcgag	gagctggccg	agcacgtgg										300
cgccggccacc	gaaccctgg	ggcaggga													327

<210> 58  
<211> 25  
<212> PRT  
<213> A. eutrophus

<400> 58  
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Gln Pro Phe Lys Val Thr Pro Gly Pro  
20 25

<210> 59  
<211> 19  
<212> PRT  
<213> A. eutrophus

<400> 59  
Ala Ala Ala Ser Thr Gln Glu Gly Lys Ser Gln Pro Phe Lys Val Thr  
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Pro Gly Pro

<210> 60  
<211> 16  
<212> PRT  
<213> A. eutrophus

<400> 60  
Ser Thr Gln Glu Gly Lys Ser Gln Pro Phe Lys Val Thr Pro Gly Pro  
1 5 10 15

<210> 61  
<211> 585  
<212> PRT  
<213> Streptomyces venezuelae

<400> 61  
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Ile Pro Gly Tyr Arg Ala Arg Ile Leu Asn Met Ser Asn Lys Asn Asn  
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Asp Glu Leu Gln Arg Gln Ala Ser Glu Asn Thr Leu Gly Leu Asn Pro  
35 40 45  
Val Ile Gly Ile Arg Arg Lys Asp Leu Leu Ser Ser Ala Arg Thr Val  
50 55 60  
Leu Arg Gln Ala Val Arg Gln Pro Leu His Ser Ala Lys His Val Ala  
65 70 75 80  
His Phe Gly Leu Glu Leu Lys Asn Val Leu Leu Gly Lys Ser Ser Leu  
85 90 95  
Ala Pro Glu Ser Asp Asp Arg Arg Phe Asn Asp Pro Ala Trp Ser Asn  
100 105 110  
Asn Pro Leu Tyr Arg Arg Tyr Leu Gln Thr Tyr Leu Ala Trp Arg Lys  
115 120 125  
Glu Leu Gln Asp Trp Ile Gly Asn Ser Asp Leu Ser Pro Gln Asp Ile  
130 135 140  
Ser Arg Gly Gln Phe Val Ile Asn Leu Met Thr Glu Ala Met Ala Pro  
145 150 155 160  
Thr Asn Thr Leu Ser Asn Pro Ala Ala Val Lys Arg Phe Phe Glu Thr  
165 170 175  
Gly Gly Lys Ser Leu Leu Asp Gly Leu Ser Asn Leu Ala Lys Asp Leu  
180 185 190

Val Asn Asn Gly Gly Met Pro Ser Gln Val Asn Met Asp Ala Phe Glu  
 195 200 205  
 Val Gly Lys Asn Leu Gly Thr Ser Glu Gly Ala Val Val Tyr Arg Asn  
 210 215 220  
 Asp Val Leu Glu Leu Ile Gln Tyr Lys Pro Ile Thr Glu Gln Val His  
 225 230 235 240  
 Ala Arg Pro Leu Leu Val Val Pro Pro Gln Ile Asn Lys Phe Tyr Val  
 245 250 255  
 Phe Asp Leu Ser Pro Glu Lys Ser Leu Ala Arg Tyr Cys Leu Arg Ser  
 260 265 270  
 Gln Gln Gln Thr Phe Ile Ile Ser Trp Arg Asn Pro Thr Lys Ala Gln  
 275 280 285  
 Arg Glu Trp Gly Leu Ser Thr Tyr Ile Asp Ala Leu Lys Glu Ala Val  
 290 295 300  
 Asp Ala Val Leu Ala Ile Thr Gly Ser Lys Asp Leu Asn Met Leu Gly  
 305 310 315 320  
 Ala Cys Ser Gly Gly Ile Thr Cys Thr Ala Leu Val Gly His Tyr Ala  
 325 330 335  
 Ala Leu Gly Glu Asn Lys Val Asn Ala Leu Thr Leu Leu Val Ser Val  
 340 345 350  
 Leu Asp Thr Thr Met Asp Asn Gln Val Ala Leu Phe Val Asp Glu Gln  
 355 360 365  
 Thr Leu Glu Ala Ala Lys Arg His Ser Tyr Gln Ala Gly Val Leu Glu  
 370 375 380  
 Gly Ser Glu Met Ala Lys Val Phe Ala Trp Met Arg Pro Asn Asp Leu  
 385 390 395 400  
 Ile Trp Asn Tyr Trp Val Asn Asn Tyr Leu Leu Gly Asn Glu Pro Pro  
 405 410 415  
 Val Phe Asp Ile Leu Phe Trp Asn Asn Asp Thr Thr Arg Leu Pro Ala  
 420 425 430  
 Ala Phe His Gly Asp Leu Ile Glu Met Phe Lys Ser Asn Pro Leu Thr  
 435 440 445  
 Arg Pro Asp Ala Leu Glu Val Cys Gly Thr Pro Ile Asp Leu Lys Gln  
 450 455 460  
 Val Lys Cys Asp Ile Tyr Ser Leu Ala Gly Thr Asn Asp His Ile Thr  
 465 470 475 480  
 Pro Trp Gln Ser Cys Tyr Arg Ser Ala His Leu Phe Gly Gly Lys Ile  
 485 490 495  
 Glu Phe Val Leu Ser Asn Ser Gly His Ile Gln Ser Ile Leu Asn Pro  
 500 505 510  
 Pro Gly Asn Pro Lys Ala Arg Phe Met Thr Gly Ala Asp Arg Pro Gly  
 515 520 525  
 Asp Pro Val Ala Trp Gln Glu Asn Ala Thr Lys His Ala Asp Ser Trp  
 530 535 540  
 Trp Leu His Trp Gln Ser Trp Leu Gly Glu Arg Ala Gly Glu Leu Glu  
 545 550 555 560  
 Lys Ala Pro Thr Arg Leu Gly Asn Arg Ala Tyr Ala Ala Gly Glu Ala  
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<210> 62

<211> 268

<212> PRT

<213> Streptomyces venezuelae

<400> 62

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35 40 45  
Gln Asp Arg Arg Ala Glu Pro Cys Leu Glu Ser Val Glu Glu Leu Ala  
50 55 60  
Glu His Val Val Ala Ala Thr Glu Pro Trp Trp Gln Glu Gly Arg Leu  
65 70 75 80  
Ala Phe Phe Gly His Ser Leu Gly Ala Ser Val Ala Phe Glu Thr Ala  
85 90 95  
Arg Ile Leu Glu Gln Arg His Gly Val Arg Pro Glu Gly Leu Tyr Val  
100 105 110  
Ser Gly Arg Arg Ala Pro Ser Leu Ala Pro Asp Arg Leu Val His Gln  
115 120 125  
Leu Asp Asp Arg Ala Phe Leu Ala Glu Ile Arg Arg Leu Ser Gly Thr  
130 135 140  
Asp Glu Arg Phe Leu Gln Asp Asp Glu Leu Leu Arg Leu Val Leu Pro  
145 150 155 160  
Ala Leu Arg Ser Asp Tyr Lys Ala Ala Glu Thr Tyr Leu His Arg Pro  
165 170 175  
Ser Ala Lys Leu Thr Cys Pro Val Met Ala Leu Ala Gly Asp Arg Asp  
180 185 190  
Pro Lys Ala Pro Leu Asn Glu Val Ala Glu Trp Arg Arg His Thr Ser  
195 200 205  
Gly Pro Phe Cys Leu Arg Ala Tyr Ser Gly Gly His Phe Tyr Leu Asn  
210 215 220  
Asp Gln Trp His Glu Ile Cys Asn Asp Ile Ser Asp His Leu Leu Val  
225 230 235 240  
Thr Arg Gly Ala Pro Asp Ala Arg Val Val Gln Pro Pro Thr Ser Leu  
245 250 255  
Ile Glu Gly Ala Ala Lys Arg Trp Gln Asn Pro Arg  
260 265